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ESSAY III.

OF

FOOD;

AND PARTICULARLY OF

FEEDING THE POOR.

ESSAY III.

INTRODUCTION.

It is a common ſaying, that neceſſity is the mother of invention; and nothing is more ſtrictly or more generally true. It may even be ſhown, that moſt of the ſucceſſive improvements in the affairs of men in a ſtate of civil ſociety, of which we have any authentic records, have been made under the preſſure of neceſſity; and it is no ſmall conſolation, in times of general alarm, to reflect upon the probability that, upon ſuch occaſions, uſeful diſcoveries will reſult from the united exertions of thoſe who, either from motives of fear, or ſentiments of benevolence, labour to avert the impending evil.

The alarm in this country at the preſent period *, on account of the high price of corn, and the danger of a ſcarcity, has turned the attention of the Public to a very important ſubject, *the inveſtigation of the ſcience of nutrition*;—a ſubject ſo curious in itſelf, and ſo highly intereſting to mankind, that it ſeems truly aſtoniſhing it ſhould have been ſo long neglected:—but in the manner in which it is now taken up, both by the Houſe of Commons, and the Board of Agriculture, there is great reaſon to hope that it will receive a thorough ſcientific examination; and if this ſhould be the caſe, I will venture to predict, that the important diſcoveries, and improvements, which muſt reſult from theſe enquiries, will render the alarms which gave riſe to them for ever famous in the annals of civil ſociety.

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* November 1795.

CHAP. I.

Great Importance of the Subject under Conſideration.—Probability that Water acts a much more important Part in Nutrition than has hitherto been generally imagined.—Surpriſingly ſmall Quantity of ſolid Food neceſſary, when properly prepared, for all the Purpoſes of Nutrition.—Great Importance of the Art of Cookery.—Barley remarkably nutritive when properly prepared.—The Importance of culinary Proceſſes for preparing Food ſhewn from the known Utility of a Practice common in ſome Parts of Germany of cooking for Cattle.—Difficulty of introducing a Change of Cookery into common Uſe.—Means that may be employed for that Purpoſe.

THERE is, perhaps, no operation of Nature, which falls under the cognizance of our ſenſes, more ſurpriſing, or more curious, than the nouriſhment and growth of plants, and animals; and there is certainly no ſubject of inveſtigation more intereſting to mankind.—As providing ſubſiſtence is, and ever muſt be, an object of the firſt concern in all countries, any diſcovery or improvement by which the procuring of good and wholeſome food can be facilitated, muſt contribute very powerfully to increaſe the comforts, and promote the happineſs of ſociety.

That our knowledge in regard to the ſcience of nutrition is ſtill very imperfect, is certain; but, I think, there is reaſon to believe, that we are upon the eve of ſome very important diſcoveries relative to that myſterious operation.

Since it has been known that Water is not a ſimple element, but a *compound*, and capable of being decompoſed, much light has been thrown upon many operations of nature which formerly were wrapped up in obſcurity. In vegetation, for inſtance, it has been rendered extremely probable, that water acts a much more important part than was formerly aſſigned to it by philoſophers.—That it ſerves not merely as the *vehicle* of nouriſhment, but conſtitutes at leaſt one part, and probably an eſſential part, of the *Food* of plants.—That it is decompoſed by them, and contributes *materially* to their growth;—and that manures ſerve rather to prepare the water for decompoſition, than to form of themſelves—ſubſtantially, and directly—the nouriſhment of the vegetables.

Now, a very clear analogy may be traced, between the vegetation and growth of plants, and the digeſtion and nouriſhment of animals; and as water is indiſpenſably neceſſary in both proceſſes, and as in one of them, (vegetation,) it appears evidently to ſerve as *Food*;—why ſhould we not ſuppoſe it may ſerve as food in the other?—There is, in my opinion, abundant reaſon to ſuſpect that this is really the caſe; and I ſhall now briefly ſtate the grounds upon which this opinion is founded.—Having been engaged for a conſiderable length of time in providing Food for the Poor at Munich, I was naturally led, as well by curioſity as motives of economy, to make a great variety of experiments upon that ſubject; and I had not proceeded far in my operations, before I began to perceive that they were very important;—even much more ſo than I had imagined.

The difference in the apparent goodneſs, or the palatableneſs, and apparent nutritiouſneſs of the ſame kinds of Food, when prepared or cooked in different ways, ſtruck me very forcibly; and I conſtantly found that the richneſs or *quality* of a ſoup depended more upon a proper choice of the ingredients, and a proper management of the fire in the combination of thoſe ingredients, than upon the quantity of ſolid nutritious matter employed;—much more upon the art and ſkill of the cook, than upon the amount of the ſums laid out in the market.

I found likewiſe, that the nutritiouſneſs of a ſoup, or its power of ſatisfying hunger, and affording nouriſhment, appeared always to be in proportion to its apparent richneſs or palatableneſs.

But what ſurpriſed me not a little, was the diſcovery of the very ſmall quantity of *ſolid Food*, which, when properly prepared, will ſuffice to ſatisfy hunger, and ſupport life and health; and the very trifling expence at which the ſtouteſt, and moſt laborious man may, in any country, be fed.

After an experience of more than five years in feeding the Poor at Munich, during which time every experiment was made that could be deviſed, not only with regard to the choice of the articles uſed as Food, but alſo in reſpect to their different combinations and proportions; and to the various ways in which they could be prepared or cooked; it was found that the *cheapeſt*, moſt *ſavoury*, and moſt *nouriſhing* Food that could be provided, was a ſoup compoſed of *pearl barley*, *peaſe*, *potatoes*, *cuttings of fine wheaten bread*, vinegar—ſalt and water, in certain proportions.

The method of preparing this ſoup is as follows: The water and the pearl barley are firſt put together into the boiler and made to boil; the peaſe are then added, and the boiling is continued over a gentle fire about two hours;—the potatoes are then added, (having been previouſly peeled with a knife, or having been boiled, in order to their being more eaſily deprived of their ſkins,) and the boiling is continued for about one hour more, during which time the contents of the boiler are frequently ſtirred about with a large wooden ſpoon, or ladle, in order to deſtroy the texture of the potatoes, and to reduce the ſoup to one uniform maſs.—When this is done, the vinegar and the ſalt are added; and laſt of all, at the moment it is to be ſerved up, the cuttings of bread.

The ſoup ſhould never be ſuffered to boil, or even to ſtand long before it is ſerved up after the cuttings of bread are put to it. It will, indeed, for reaſons which will hereafter be explained, be beſt never to put the cuttings of bread into the boiler at all, but, (as is always done at Munich,) to put them into the tubs in which the ſoup is carried from the kitchen into the dining-hall; pouring the ſoup hot from the boiler upon them, and ſtirring the whole well together with the iron ladles uſed for meaſuring out the ſoup to the Poor in the hall.

It is of more importance than can well be imagined, that this bread, which is mixed with the ſoup, ſhould not be boiled. It is likewiſe of uſe that it ſhould be cut as fine or thin as poſſible; and if it be dry and hard, it will be ſo much the better.

The bread we uſe in Munich is what is called *ſemel* bread, being ſmall loaves, weighing from two to three ounces; and as we receive this bread in donations from the bakers, it is commonly dry and hard, being that which, not being ſold in time, remains on hand, and becomes ſtale and unſaleable; and we have found by experience, that this hard and ſtale bread anſwers for our purpoſe much better than any other, for it renders maſtication neceſſary; and maſtication ſeems very powerfully to aſſiſt in promoting digeſtion: it likewiſe *prolongs the duration of the enjoyment of eating*, a matter of very great importance indeed, and which has not hitherto been ſufficiently attended to.

The quantity of this ſoup furniſhed to each perſon, at each meal, or one portion of it, (the cuttings of bread included,) is juſt *one Bavarian pound* in weight; and as the Bavarian pound is to the pound Avoirdupois as 1,123842 to 1,—it is equal to about nineteen ounces and nine-tenths Avoirdupois. Now, to thoſe who know that a full pint of ſoup weighs no more than about ſixteen ounces Avoirdupois, it will not, perhaps, at the firſt view, appear very extraordinary that a portion weighing near twenty ounces, and conſequently making near *one pint and a quarter* of this rich, ſtrong, ſavoury ſoup, ſhould be found ſufficient to ſatisfy the hunger of a grown perſon; but when the matter is examined narrowly, and properly analyzed, and it is found that the whole quantity of *ſolid food* which enters into the compoſition of one of theſe portions of ſoup, does not amount to quite *ſix ounces*, it will then appear to be almoſt impoſſible that this allowance ſhould be ſufficient.

That it is quite ſufficient, however, to make a good meal for a ſtrong healthy perſon, has been abundantly proved by long experience. I have even found that a ſoup compoſed of nearly the ſame ingredients, except the potatoes, but in different proportions, was ſufficiently nutritive, and very palatable, in which only about *four ounces and three quarters* of ſolid Food entered into the compoſition of a portion weighing twenty ounces.

But this will not appear incredible to thoſe who know, that one ſingle ſpoonful of *ſalope*, weighing leſs than one quarter of an ounce, put into a pint of boiling water, forms the thickeſt and moſt nouriſhing ſoup that can be taken; and that the quantity of ſolid matter which enters into the compoſition of another very nutritive Food, *hartſhorn jelly*, is not much more conſiderable.

The *barley* in my ſoup, ſeems to act much the ſame part as the *ſalope* in this famous reſtorative; and no ſubſtitute that I could ever find for it, among all the variety of corn and pulſe of the growth of Europe, ever produced half the effect; that is to ſay, half the nouriſhment at the ſame expence. Barley may therefore be conſidered as the rice of Great Britain.

It requires, it is true, a great deal of boiling; but when it is properly managed, it thickens a vaſt quantity of water; and, as I ſuppoſe, *prepares it for decompoſition*. It alſo gives the ſoup into which it enters as an ingredient, a degree of richneſs which nothing elſe can give. It has little or no taſte in itſelf, but when mixed with other ingredients which are ſavoury, it renders them peculiarly grateful to the palate *.

It is a maxim, as ancient, I believe, as the time of Hippocrates, that "*whatever pleaſes the palate* "*nouriſhes*;" and I have often had reaſon to think it perfectly juſt. Could it be clearly aſcertained and demonſtrated, it would tend to place *cookery* in a much more reſpectable ſituation among the arts than it now holds.

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* The preparation of water is, in many caſes, an object of more importance than is generally imagined; particularly when it is made uſe of as a vehicle for conveying agreeable taſtes. In making *punch*, for inſtance, if the water uſed be previouſly boiled two or three hours with a handful of rice, the punch made of it will be incomparably better, that is to ſay, more full and luſcious upon the palate, than when the water is not prepared.

That the manner in which Food is prepared is a matter of real importance; and that the water uſed in that proceſs acts a much more important part than has hitherto been generally imagined, is, I think, quite evident; for, it ſeems to me to be impoſſible, upon any other ſuppoſition, to account for the appearances. If the very ſmall quantity of ſolid Food which enters into the compoſition of a portion of ſome very nutritive ſoup were to be prepared differently, and taken under ſome other form, that of bread, for inſtance; ſo far from being ſufficient to ſatisfy hunger, and afford a comfortable and nutritive meal, a perſon would abſolutely ſtarve upon ſuch a ſlender allowance; and no great relief would be derived from drinking *crude* water to fill up the void in the ſtomach.

But it is not merely from an obſervation of the apparent effects of cookery upon thoſe articles which are uſed as Food for man, that we are led to diſcover the importance of theſe culinary proceſſes. Their utility is proved in a manner equally concluſive and ſatisfactory, by the effects which have been produced by employing the ſame proceſs in preparing Food for brute animals.

It is well known, that boiling the potatoes with which hogs are fed, renders them much more nutritive; and ſince the introduction of the new ſyſtem of feeding horned cattle, that of keeping them confined in the ſtables all the year round, (a method which is now coming faſt into common uſe in many parts of Germany,) great improvements have been made in the art of providing nouriſhment for thoſe animals; and particularly by preparing their Food, by operations ſimilar to thoſe of cookery; and to theſe improvements it is moſt probably owing, that ſtall feeding has, in that country, been ſo univerſally ſucceſsful.

It has long been a practice in Germany for thoſe who fatten bullocks for the butcher, or feed milch-cows, to give them frequently what is called a *drank* or *drink*; which is a kind of pottage, prepared differently in different parts of the country, and in the different ſeaſons, according to the greater facility with which one or other of the articles occaſionally employed in the compoſition of it may be procured; and according to the particular fancies of individuals. Many feeders make a great ſecret of the compoſition of their *drinks*, and ſome have, to my knowledge, carried their refinement ſo far as actually to mix brandy in them, in ſmall quantities; and pretend to have found their advantage in adding this coſtly ingredient.

The articles moſt commonly uſed are, bran, oatmeal, brewers grains, maſhed potatoes, maſhed turnips, rye meal, and barley meal, with a large proportion of water; ſometimes two or three or more of theſe articles are united in forming a *drink*; and of whatever ingredients the drink is compoſed, a large proportion of ſalt is always added to it.

There is, perhaps, nothing new in this method of feeding cattle with liquid mixtures, but the manner in which theſe drinks are now prepared in Germany is, I believe, quite new; and ſhows what I wiſh to prove, that *cooking renders Food really more nutritive.*

Theſe drinks were formerly given cold, but it was afterwards diſcovered that they were more nouriſhing when given warm; and of late their preparation is, in many places, become a very regular culinary proceſs. Kitchens have been built, and large boilers provided and fitted up, merely for cooking for the cattle in the ſtables; and I have been aſſured by many very intelligent farmers, who have adopted this new mode of feeding, (and have alſo found by my own experience,) that it is very advantageous indeed; that the drinks are evidently rendered much more nouriſhing and wholeſome by being boiled; and that the expence of fuel, and the trouble attending this proceſs, are amply compenſated by the advantages derived from the improvement of the Food. We even find it advantageous to continue the boiling a conſiderable time, two or three hours, for inſtance; as the Food goes on to be ſtill farther improved, the longer the boiling is continued*.

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* I cannot diſmiſs this ſubject, the feeding of cattle, without juſt mentioning another practice common among our beſt farmers in Bavaria, which, I think, deſerves to be known. They chop the green clover with which they feed their cattle, and mix with it a conſiderable quantity of chopped ſtraw. They pretend that this rich ſucculent graſs is of ſo clammy a nature, that unleſs it be mixed with chopped ſtraw, hay, or ſome other dry fodder, cattle which are fed with it do not ruminate ſufficiently. The uſual proportion of the clover to the ſtraw, is as two to one.

Theſe facts ſeem evidently to ſhow, that there is ſome very important ſecret with regard to nutrition, which has not yet been properly inveſtigated; and it ſeems to me to be more than probable, that the number of inhabitants who may be ſupported in any country, upon its internal produce, depends almoſt as much upon the ſtate of *the art of cookery*, as upon that of *agriculture*.—The Chineſe, perhaps, underſtand both theſe arts better than any other nation. – Savages underſtand neither of them.

But, if cookery be of ſo much importance, it certainly deſerves to be ſtudied with the greateſt care; and it ought particularly to be attended to in times of general alarm on account of a ſcarcity of proviſions; for the relief which may in ſuch caſes be derived from it, is immediate and effectual, while all other reſources are diſtant and uncertain.

I am aware of the difficulties which always attend the introduction of meaſures calculated to produce any remarkable change in the cuſtoms and habits of mankind; and there is perhaps no change more difficult to effect, than that which would be neceſſary in order to make any conſiderable ſaving in the conſumption of thoſe articles commonly uſed as Food; but ſtill, I am of opinion, that ſuch a change might, with proper management, be brought about.

There was a time, no doubt, when an averſion to potatoes was as general, and as ſtrong, in Great Britain, and even in Ireland, as it is now in ſome parts of Bavaria; but this prejudice has been got over; and I am perſuaded, that any national prejudice, however deeply rooted, may be overcome, provided proper means be uſed for that purpoſe, and time allowed for their operation.

But notwithſtanding the difficulty of introducing a general uſe of ſoups throughout the country, or of any other kind of Food, however palatable, cheap, and nouriſhing, to which people have not been accuſtomed, yet theſe improvements might certainly be made, with great facility, in all public hoſpitals and work-houſes, where the Poor are fed at the public expence; and the ſaving of proviſions, (not to mention the diminution of expence,) which might be derived from this improvement, would be very important at all times, and more eſpecially in times of general ſcarcity.

Another meaſure, ſtill more important, and which might, I am perſuaded, be eaſily carried into execution, is the eſtabliſhment of public kitchens in all towns, and large villages, throughout the kingdom; whence, not only the Poor might be fed *gratis*, but alſo all the induſtrious inhabitants of the neighbourhood might be furniſhed with Food at ſo cheap a rate, as to be a very great relief to them at all times; and in times of general ſcarcity, this arrangement would alone be ſufficient to prevent thoſe public and private calamities, which never fail to accompany that moſt dreadful of all viſitations, a famine.

The ſaving of Food that would reſult from feeding a large proportion of the inhabitants of any country from public kitchens, would be immenſe, and that ſaving would tend, immediately, and moſt powerfully, to render proviſions more plentiful and cheap,—diminiſh the general alarm on account of the danger of a ſcarcity, and prevent the hoarding up of proviſions by individuals, which is often alone ſufficient, without any thing elſe, to bring on a famine, even where there is no real ſcarcity: for it is not merely the *fears* of individuals which operate in theſe caſes, and induce them to lay in a larger ſtore of proviſions than they otherwiſe would do; and which naturally increaſes the ſcarcity of proviſions in the market, and raiſes their prices; but there are perſons who are ſo loſt to all the feelings of humanity, as often to ſpeculate upon the diſtreſs of the Public, and all *their* operations effectually tend to increaſe the ſcarcity in the markets, and augment the general alarm.

But without enlarging farther in this place upon theſe public kitchens, and the numerous and important advantages which may in all countries be derived from them, I ſhall return to the intereſting ſubjects which I have undertaken to inveſtigate;—the ſcience of nutrition, and the art of providing wholeſome and palatable Food at a ſmall expence.

CHAP. II.

Of the Pleaſure of Eating, and of the Means that may be employed for increaſing it.

WHAT has already been ſaid upon this ſubject will, I flatter myſelf, be thought ſufficient to ſhow that, *for all the purpoſes of nouriſhment*, a much ſmaller quantity of ſolid Food will ſuffice than has hitherto been thought neceſſary; but there is another circumſtance to be taken into the account, and that is, the *pleaſure of eating*;—an enjoyment of which no perſon will conſent to be deprived.

The pleaſure enjoyed in eating depends firſt upon the agreeableneſs of the taſte of the Food; and ſecondly, upon its power to affect the palate. Now there are many ſubſtances extremely cheap, by which very agreeable taſtes may be given to Food; particularly when the baſis or nutritive ſubſtance of the Food is taſteleſs; and the effect of any kind of palatable ſolid Food, (of meat, for inſtance,) upon the organs of taſte, may be increaſed, almoſt indefinitely, by reducing the ſize of the particles of ſuch Food, and cauſing it to act upon the palate by a larger ſurface. And if means be uſed to prevent its being ſwallowed too ſoon, which may be eaſily done by mixing with it ſome hard and taſteleſs ſubſtance, ſuch as crumbs of bread rendered hard by toaſting, or any thing elſe of that kind, by which a long maſtication is rendered neceſſary,

ceſſary, the enjoyment of eating may be greatly increaſed and prolonged.

The idea of occupying a perſon a great while, and affording him much pleaſure at the ſame time, in eating a ſmall quantity of Food, may, perhaps, appear ridiculous to ſome; but thoſe who conſider the matter attentively, will perceive that it is very important. It is, perhaps, as much ſo as any thing that can employ the attention of the philoſopher.

The enjoyments which fall to the lot of the bulk of mankind are not ſo numerous as to render an attempt to increaſe them ſuperfluous. And even in regard to thoſe who have it in their power to gratify their appetites to the utmoſt extent of their wiſhes, it is ſurely rendering them a very important ſervice to ſhow them how they may increaſe their pleaſures without deſtroying their health.

If a glutton can be made to gormandize two hours upon two ounces of meat, it is certainly much better for him, than to give himſelf an indigeſtion by eating two pounds in the ſame time.

I was led to meditate upon this ſubject by mere accident. I had long been at a loſs to underſtand how the Bavarian ſoldiers, who are uncommonly ſtout, ſtrong, and healthy men, and who, in common with all other Germans, are remarkably fond of eating, could contrive to live upon the very ſmall ſums they expend for Food; but a more careful examination of the economy of their tables cleared up the point, and let me into a ſecret which awakened all my curioſity. Theſe ſoldiers, inſtead of being ſtarved upon their ſcanty allowance, as might have been ſuſpected, I found actually living in a moſt comfortable and even luxurious manner. I found that they had contrived not only to render their Food ſavoury and nouriſhing, but, what appeared to me ſtill more extraordinary, had found out the means of increaſing its action upon the organs of taſte ſo as actually to augment, and even prolong to a moſt ſurpriſing degree, the enjoyment of eating.

This accidental diſcovery made a deep impreſſion upon my mind, and gave a new turn to all my ideas on the ſubject of Food.—It opened to me a new and very intereſting field for inveſtigation and experimental inquiry, of which I had never before had a diſtinct view; and thenceforward my diligence in making experiments, and in collecting information relative to the manner in which Food is prepared in different countries, was redoubled.

In the following Chapter may be ſeen the general reſults of all my experiments and inquiries relative to this ſubject.—A deſire to render this account as conciſe and ſhort as poſſible has induced me to omit much intereſting ſpeculation which the ſubject naturally ſuggeſted; but the ingenuity of the reader will ſupply this defect, and enable him to diſcover the objects particularly aimed at in the experiments, even where they are not mentioned, and to compare the reſults of practice with the aſſumed theory.

CHAP. III.

Of the different Kinds of Food furniſhed to the Poor in the Houſe of Induſtry at Munich, with an Account of the Coſt of them.—Of the Expence of providing the ſame Kinds of Food in Great Britain, as well at the preſent high Prices of Proviſions, as at the ordinary Prices of them.—Of the various Improvements of which theſe different Kinds of cheap Food are capable.

BEFORE the introduction of potatoes as Food in the Houſe of Induſtry at Munich, (which was not done till laſt Auguſt,) the Poor were fed with a ſoup compoſed in the following manner:

SOUP N° I.

Ingredients.	Weight Avoirdupois.		Coſt in ſterling money.		
	lb.	oz.	£.	s.	d.
4 *viertls** of pearl barley, equal to about $20\frac{1}{3}$ gallons - -	141	2	0	11	$7\frac{1}{2}$
4 *viertls* of peas - - -	131	4	0	7	$3\frac{1}{4}$
Cuttings of fine wheaten bread	69	10	0	10	$2\frac{1}{4}$
Salt - - - - -	19	13	0	1	$2\frac{1}{2}$
24 *maaſs*, very weak beer—vinegar, or rather ſmall beer turned ſour, about 24 quarts	46	13	0	1	$5\frac{1}{2}$
Water, about 560 quarts - -	1077	0			
	1485	10	1	11	$8\frac{11}{12}$

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* A *viertl* is the twelfth part of a ſchäff, and the Bavarian ſchäff is equal to $6\frac{31}{100}$ Wincheſter buſhels.

	£.	s.	d.
Brought over	1	11	$8\frac{11}{22}$
Fuel, 88lb. of dry pine wood, the Bavarian *claſter*, (weighing 3961 lb. avoirdupois,) at 8s. $2\frac{1}{4}$d. ſterling * - - - - - - -	0	0	$2\frac{1}{4}$
Wages of three cook-maids, at twenty florins (37s. $7\frac{1}{2}$d.) a year each, makes daily -	0	0	$3\frac{2}{3}$
Daily expence for feeding the three cook-maids, at ten creutzers ($3\frac{2}{3}$ pence ſterling) *each*, according to an agreement made with them -	0	0	11
Daily wages of two men ſervants, employed in going to market—collecting donations of bread, &c. helping in the kitchen, and aſſiſting in ſerving out the ſoup to the Poor - -	0	1	$7\frac{1}{2}$
Repairs of the kitchen, and of the kitchen furniture, about 90 florins (8l. 3s. 7d. ſterling) a year, makes daily - - -	0	0	$5\frac{1}{2}$
Total daily expences, when dinner is provided for 1200 perſons - - - -	1	15	$2\frac{1}{4}$

This ſum (1l. 15s. $2\frac{1}{4}$d.) divided by 1200, the number of portions of ſoup furniſhed, gives for each portion a mere trifle more than *one third of a penny*, or exactly $\frac{422}{1200}$ of a penny; the weight of each portion being about 20 ounces.

But, moderate as theſe expences are, which have attended the feeding of the Poor of Munich, they have lately been reduced ſtill farther by introducing the uſe of potatoes.—Theſe moſt valuable vegetables were hardly known in Bavaria till very lately; and ſo ſtrong was the averſion of the public, and particularly of the Poor, againſt them, at the time when we began to make uſe of them in the public kitchen of the Houſe of Induſtry in

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* The quantity of fuel here mentioned, though it certainly is almoſt incredibly ſmall, was nevertheleſs determined from the reſults of actual experiments. A particular account of theſe experiments will be given in my Eſſay on the Management of Heat and the Economy of Fuel.

Munich, that we were abſolutely obliged, at firſt, to introduce them by ſtealth.—A private room in a retired corner was fitted up as a kitchen for cooking them; and it was neceſſary to diſguiſe them, by boiling them down entirely, and deſtroying their form and texture, to prevent their being detected:—but the Poor ſoon found that their ſoup was improved in its qualities; and they teſtified their approbation of the change that had been made in it ſo generally and loudly, that it was at laſt thought to be no longer neceſſary to conceal from them the ſecret of its compoſition, and they are now grown ſo fond of potatoes that they would not eaſily be ſatisfied without them.

The employing of potatoes as an ingredient in the ſoup has enabled us to make a conſiderable ſaving in the other more coſtly materials, as may be ſeen by comparing the following receipt with that already given.

SOUP, N° II.

Ingredients.	Weight Avoirdupois.			Coſt in ſterling money.		
	lb.	oz.		£.	s.	d.
2 *viertls* of pearl barley -	70	9	——	0	5	$9\frac{13}{22}$
2 *viertls* of peas - -	65	10	——	0	3	$7\frac{5}{8}$
8 *viertls* of potatoes - -	230	4	——	0	1	$9\frac{9}{11}$
Cuttings of bread - -	69	10	——	0	10	$2\frac{11}{4}$
Salt - - -	19	13	——	0	1	$2\frac{1}{2}$
Vinegar - - -	46	13	——	0	1	$5\frac{1}{2}$
Water - - -	982	15				
Total weight	1485	10				
Expences for *fuel, ſervants*, repairs, &c. as before				0	3	$5\frac{5}{12}$
Total daily expence, when dinner is provided for 1200 perſons - - -				1	7	$6\frac{2}{3}$

This ſum (1l. 7 s. $6\frac{2}{3}$d.) divided by 1200, the number of portions of ſoup, gives for each portion *one farthing* very nearly; or accurately, $1\frac{1}{10}$ farthing.

The quantity of each of the ingredients contained in one portion of ſoup is as follows:

Ingredients.	In avoirdupois weight. *Soup*, N° I.	*Soup*, N° II.
	oz.	oz.
Of pearl barley	$1\frac{1058}{1200}$	$0\frac{1129}{1200}$
Of peas	$1\frac{960}{1200}$	$0\frac{1050}{1200}$
Of potatoes	—	$3\frac{84}{1200}$
Of bread	$0\frac{1114}{1200}$	$0\frac{1114}{1200}$
Total ſolids	$4\frac{772}{1200}$	$5\frac{977}{1200}$
Of ſalt	$0\frac{316}{1200}$	$0\frac{316}{1200}$
Of weak vinegar	$0\frac{748}{1200}$	$0\frac{748}{1200}$
Of water	$14\frac{432}{1200}$	$13\frac{127}{1200}$
Total	$19\frac{968}{1200}$	$19\frac{968}{1205}$

The expence of preparing theſe ſoups will vary with the prices of the articles of which they are compoſed; but as the quantities of the ingredients, determined by weight, are here given, it will be eaſy to aſcertain exactly what they will coſt in any caſe whatever.

Suppoſe, for inſtance, it were required to determine how much 1200 portions of the Soup, No. I. would coſt in London at this preſent moment, (the 12th of November 1795,) when all kinds of proviſions are uncommonly dear. I ſee by a printed report of the Board of Agriculture, of the day before yeſterday (November 10), that the prices of the articles neceſſary for preparing theſe ſoups were as follows:

Barley, per buſhel weighing 46 lb. at 5 s. 6d. which gives for each pound about $1\frac{1}{2}$d.; but prepared as pearl barley, it will coſt at leaſt two pence per pound *.

Boiling peas per buſhel, weighing 61¾ lb. (at 10s.) which gives for each pound nearly 1½d.

Potatoes, per buſhel, weighing 58½ lb. at 2s. 6d. which gives nearly one halfpenny for each pound.

And I find that a quartern loaf of wheaten *bread*, weighing 4 lb. 5 oz. coſts now in London 1s. 0¼d.;—this bread muſt therefore be reckoned at $11\frac{25}{69}$ farthings *per* pound.

Salt coſts 1½d. *per* pound; and vinegar (which is probably ſix times as ſtrong as that ſtuff called vinegar which is uſed in the kitchen of the Houſe of Induſtry at Munich) coſts 1s. 8d. *per* gallon.

This being premiſed, the computations may be made as follows:

Expence of preparing in London, in the month of November 1795, 1200 portions of the Soup, N° I.

lb.	oz.		s.	d.		£.	s.	d.
141	2	pearl barley, at	0	2	*per lb.*	1	12	6
131	4	peas, at —	0	1½	——	0	16	4
69	10	wheaten bread, at	0	$11\frac{25}{69}$	——	0	16	6
19	13	ſalt, at —	0	1½	——	0	2	5½
Vinegar, one gallon, at —			1	8	——	0	1	8
Expences for *fuel*, *ſervants*, *kitchen furniture*, &c. reckoning three times as much as thoſe articles of expence amount to daily at Munich						0	10	4¼
					Total	3	9	9¾

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* One Bavarian ſchäfl (equal to $6\frac{31}{106}$ Wincheſter buſhels) of barley, weighing at a medium 250 Bavarian pounds, upon being pearled, or *rolled* (as it is called in Germany), is reduced to half a ſchafl, which weighs 171 Bavarian pounds. The 79 lb. which it loſes in the operation is the perquiſite of the miller, and is all he receives for his trouble.

Which ſum (3l. 9s. 9¾d.) divided by 1200, the number of portions of ſoup, gives 2$\frac{951}{1200}$ farthings, or nearly 2¾ farthings for each portion.

For the Soup, N° II. it will be,

lb.	oz.			s.	d.		£.	s.	d.
70	9	pearl barley, at		0	2	——	0	11	9
65	10	peas, at	—	0	1½	——	0	8	2
230	4	potatoes, at	—	0	0½	——	0	13	9
69	10	bread, at	—	0	11$\frac{25}{65}$	——	0	16	6
19	13	ſalt, at	—	0	1½	——	0	2	5½
Vinegar, one gallon			—			——	0	1	8
Expences for fuel, ſervants, &c.						——	0	10	4¾
						Total	3	4	7¾

This ſum (3l. 4s. 7¾d.) divided by 1200, the number of portions, gives for each 2½ farthings very nearly.

This ſoup comes much higher here in London, than it would do in moſt other parts of Great Britain, on account of the very high price of potatoes in this city; but in moſt parts of the kingdom, and certainly in every part of Ireland, it may be furniſhed, even at this preſent moment, notwithſtanding the uncommonly high prices of proviſions, at leſs than *one halfpenny* the portion of 20 ounces.

Though the object moſt attended to in compoſing theſe ſoups was to render them wholeſome and nouriſhing, yet they are very far from being unpalatable.—The baſis of the ſoups, which is water prepared and thickened by barley, is well calculated to receive, and to convey to the palate in an agreeable manner, every thing that is ſavoury in the other ingredients; and the dry bread rendering maſtication neceſſary, prolongs the action of the Food upon the organs of taſte, and by that means increaſes and *prolongs* the enjoyment of eating.

But though theſe ſoups are very good and nouriſhing, yet they certainly are capable of a variety of improvements.—The moſt obvious means of improving them is to mix with them a ſmall quantity of ſalted meat, boiled, and cut into very ſmall pieces, (the ſmaller the better,) and to fry the bread that is put into them in butter, or in the fat of ſalted pork or bacon.

The bread, by being fried, is not only rendered much harder, but being impregnated with a fat or oily ſubſtance it remains hard after it is put into the ſoup, the water not being able to penetrate it and ſoften it.

All good cooks put fried bread, cut into ſmall ſquare pieces, in peas-ſoup; but I much doubt whether they are aware of the very great importance of that practice, or that they have any juſt idea of the *manner* in which the bread improves the ſoup.

The beſt kind of meat for mixing with theſe ſoups is ſalted pork, or bacon, or ſmoked beef.

Whatever meat is uſed, it ought to be boiled either in clear water or in the ſoup; and after it is boiled, it ought to be cut into very ſmall pieces, as ſmall, perhaps, as barley-corns.—The bread may be cut in pieces of the ſize of large peas, or in thin ſlices; and after it is fried, it may be mixed with the meat and put into the ſoup-diſhes, and the ſoup poured on them when it is ſerved out.

Another method of improving this ſoup is to mix with it ſmall dumplins, or meat-balls, made of bread, flour, and ſmoked beef, ham, or any other kind of ſalted meat, or of liver cut into ſmall pieces, or rather *minced*, as it is called.—These dumplins may be boiled either in the ſoup or in clear water, and put into the ſoup when it is ſerved out.

As the meat in theſe compoſitions is deſigned rather to pleaſe the palate than for any thing elſe, the ſoup being ſufficiently nouriſhing without it, it is of much importance that it be reduced to very ſmall pieces, in order that it be brought into contact with the organs of taſte by a large ſurface; and that it be mixed with ſome hard ſubſtance, (fried bread, for inſtance, crumbs, or hard dumplins,) which will neceſſarily prolong the time employed in maſtication.

When this is done, and where the meat employed has much flavour, a very ſmall quantity of it will be found ſufficient to anſwer the purpoſe required.

One ounce of bacon, or of ſmoked beef, and *one ounce* of fried bread, added to *eighteen ounces* of the Soup No. I. would afford an excellent meal, in which the taſte of animal food would decidedly predominate.

Dried ſalt fiſh, or ſmoked fiſh, boiled and then minced, and made into dumplins with maſhed potatoes, bread, and flour, and boiled again, would be very good, eaten with either of the Soups No. I. or No. II.

Theſe ſoups may likewiſe be improved, by mixing with them various kinds of cheap roots and green vegetables, as turnips, carrots, parſnips, celery, cabbages, ſour-crout, &c.; as alſo by ſeaſoning them with fine herbs and black pepper.—Onions and leeks may likewiſe be uſed with great advantage, as they not only ſerve to render the Food in which they enter as ingredients peculiarly ſavoury, but are really very wholeſome.

With regard to the barley made uſe of in preparing theſe ſoups, though I always have uſed pearl barley, or *rolled* barley (as it is called in Germany), yet I have no doubt but common barley-meal would anſwer *nearly* as well; particularly if care were taken to boil it gently for a ſufficient length of time over a ſlow fire before the peas are added*.

Till the laſt year, we uſed to cook the barley-ſoup and the peas-ſoup ſeparate, and not to mix them till the moment when they were poured into the tubs upon the cut bread, in order to be carried into the dining-hall; but I do not know that any advantages were derived from that practice; the ſoup being, to all appearance, quite as good ſince the barley and the peas have been cooked together as before.

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* Since the Firſt Edition of this Eſſay was publiſhed the experiment with barley-meal has been tried, and the meal has been found to anſwer quite as well as pearl barley, if not better, for making theſe ſoups. Among others, Thomas Bernard, Eſq. Treaſurer of the Foundling Hoſpital, a gentleman of moſt reſpectable character, and well known for his philanthropy and active zeal in relieving the diſtreſſes of the Poor, has given it a very complete and fair trial; and he found, what is very remarkable, though not difficult to be accounted for—that the barley-meal, *with all the bran in it*, anſwered better, that is to ſay, made the ſoup richer, and thicker, than when the fine flour of barley, without the bran, was uſed.

As ſoon as the ſoup is done, and the boilers are emptied, they are immediately refilled with water, and the barley for the ſoup for the next day is put into it, and left to ſteep over night; and at ſix o'clock the next morning the fires are lighted under the boilers*.

The peas, however, are never ſuffered to remain in the water over-night, as we have found, by repeated trials, that they never boil ſoft if the water in which they are boiled is not boiling hot when they are put into it.—Whether this is peculiar to the peas which grow in Bavaria, I know not.

When I began to feed the Poor of Munich, there was alſo a quantity of meat boiled in their ſoup; but as the quantity was ſmall, and the quality of it but very indifferent, I never thought it contributed much to rendering the victuals more nouriſhing: but as ſoon as means were found for rendering the ſoup palatable without meat, the quantity of it uſed was gradually diminiſhed, and it was at length entirely omitted. I never heard that the Poor complained of the want of it; and much doubt whether they took notice of it.

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* By ſome experiments lately made it has been found that the ſoup will be much improved if a ſmall fire is made under the boiler, juſt ſufficient to make its contents boil up once, when the barley and water are put into it, and then cloſing up immediately the aſh-hole regiſter, and the damper in the chimney, and throwing a thick blanket, or a warm coverlid over the cover of the boiler, the whole be kept hot till the next morning. This heat ſo long continued, acts very powerfully on the barley, and cauſes it to thicken the water in a very ſurpriſing manner. Perhaps the *oat-meal* uſed for making water gruel might be improved in its effects by the ſame means. The experiment is certainly worth trying.

The management of the fire in cooking is, in all caſes, a matter of great importance; but in no caſe is it ſo neceſſary to be attended to as in preparing the cheap and nutritive ſoups here recommended.—Not only the palatableneſs, but even the ſtrength or richneſs of the ſoup, ſeems to depend very much upon the management of the heat employed in cooking it.

From the beginning of the proceſs to the end of it, the boiling ſhould be as gentle as poſſible;—and if it were poſſible to keep the ſoup always *juſt boiling hot*, without actually boiling, it would be ſo much the better.

Cauſing any thing to boil violently in any culinary proceſs is very ill judged; for it not only does not expedite, even in the ſmalleſt degree, the proceſs of cooking, but it occaſions a moſt enormous waſte of fuel; and by driving away with the ſteam many of the more volatile and more ſavoury particles of the ingredients, renders the victuals leſs good and leſs palatable.—To thoſe who are acquainted with the experimental philoſophy of heat, and who know that water once brought to be *boiling hot*, however gently it may boil in fact, *cannot be made any hotter*, however large and intenſe the fire under it may be made, and who know that it is by the *heat*—that is to ſay, *the degree* or intenſity of it, and the *time* of its being continued, and not by the bubbling up or *boiling*, (as it is called) of the water that culinary operations are performed—this will be evident, and thoſe who know that more than *five times* as much heat is required to *ſend off in ſteam* any given quantity of water *already boiling hot* as would be neceſſary to heat the ſame quantity of *ice-cold* water *to the boiling point*—will ſee the enormous waſte of heat, and conſequently of fuel, which, in all caſes muſt reſult from violent boiling in culinary proceſſes.

To prevent the ſoup from burning to the boiler, the bottom of the boiler ſhould be made *double*; the falſe bottom, (which may be very thin) being fixed on the inſide of the boiler, the two ſheets of copper being every where in contact with each other; but they ought not to be attached to each other with ſolder, except only at the edge of the falſe bottom where it is joined to the ſides of the boiler.—The falſe bottom ſhould have a rim about an inch and a half wide, projecting upwards, by which it ſhould be riveted to the ſides of the boiler; but only few rivets, or nails, ſhould be uſed for fixing the two bottoms together below, and thoſe uſed ſhould be very ſmall; otherwiſe, where large nails are employed at the bottom of the boiler, where the fire is moſt intenſe, the ſoup will be apt to *burn to*; at leaſt on the heads of thoſe large nails.

The two ſheets of metal may be made to touch each other every where, by hammering them together after the falſe bottom is fixed in its place; and they may be tacked together by a few ſmall rivets placed here and there, at conſiderable diſtances from each other; and after this is done, the boiler may be tinned.

In tinning the boiler, if proper care be taken, the edge of the falſe bottom may be ſoldered by the tin to the ſides of the boiler, and this will prevent the water, or other liquids put into the boiler, from getting between the two bottoms.

In this manner double bottoms may be made to ſauce-pans and kettles of all kinds uſed in cooking; and this contrivance will, in all caſes, moſt effectually prevent what is called by the cooks *burning to*[*].

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[*] This invention of double bottoms might be uſed with great ſucceſs by diſtillers, to prevent their liquor, when it is thick, from burning to the bottoms of their ſtills. But there is another hint, which I have long wiſhed to give diſtillers, from which, I am perſuaded, they might derive very eſſential advantages.—It is to recommend to them to make up warm clothing of thick blanketing for covering up their ſtill-heads, and defending them from the cold air of the atmoſphere; and for covering in the ſame manner all that part of the copper or boiler which riſes above the brick-work in which it is fixed. The great quantity of heat which is conſtantly given off to the cold air of the atmoſphere in contact with it by this naked copper, not only occaſions a very great loſs of heat, and of fuel, but tends likewiſe very much to *embarraſs* and to *prolong* the proceſs of diſtillation; for all the heat communicated by the naked ſtill-head to the atmoſphere is taken from the ſpirituous vapour which riſes from the liquor in the ſtill; and as this vapour cannot fail to be condenſed into ſpirits whenever and *wherever* it loſes *any part* of its heat,—as the ſpirits generated in the ſtill-head in conſequence of this communication of heat to the atmoſphere do not find their way into the worm, but trickle down and mix again with the liquor in the ſtill,—the bad effects of leaving the ſtill-head expoſed naked to the cold air is quite evident. The remedy for this evil is as cheap and as effectual, as it is ſimple and obvious.

The heat is ſo much obſtructed in its paſſage through the thin ſheet of air, which, notwithſtanding all the care that is taken to bring the two bottoms into actual contact, will ſtill remain between them, the ſecond has time to give its heat as faſt as it receives it, to the fluid in the boiler; and conſequently never acquires a degree of heat ſufficient for burning any thing that may be upon it.

Perhaps it would be beſt to double copper ſauce-pans and ſmall kettles throughout; and as this may and ought to be done with a very thin ſheet of metal, it could not coſt much, even if this lining were to be made of ſilver.

But I muſt not enlarge here upon a ſubject I ſhall have occaſion to treat more fully in another place.—To return, therefore, to the ſubject more immediately under conſideration, Food.

CHAP. IV.

Of the ſmall Expence at which the Bavarian Soldiers are fed.—Details of their Houſekeeping, founded on actual Experiment.—An Account of the Fuel expended by them in Cooking.

IT has often been matter of ſurpriſe to many, and even to thoſe who are moſt converſant in military affairs, that ſoldiers can find means to live upon the very ſmall allowances granted them for their ſubſiſtence; and I have often wondered that nobody has undertaken to inveſtigate that matter, and to explain a myſtery at the ſame time curious and intereſting, in a high degree.

The pay of a private ſoldier is in all countries very ſmall, much leſs than the wages of a day-labourer; and in ſome countries it is ſo mere a pittance, that it is quite aſtoniſhing how it can be made to ſupport life.

The pay of a private foot-ſoldier in the ſervice of His Moſt Serene Highneſs the Elector Palatine, (and it is the ſame for a private grenadier in the regiment of guards,) is *five creutzers* a-day, and no more.—Formerly the pay of a private foot-ſoldier was only four creutzers and a half a-day, but lately, upon the introduction of the new military arrangements in the country, his pay has been raiſed to five creutzers;—and with this he receives one pound thirteen ounces and a half, Avoirdupois weight, of rye-bread, which, at the medium price of grain in Bavaria and the Palatinate, coſts ſomething leſs than three creutzers, or juſt about *one penny* ſterling.

The pay which the ſoldier receives in money,—(five creutzers a-day,) equal to one penny three farthings ſterling, added to his daily allowance of bread, valued at one penny, make *two pence three farthings* a-day, for the ſum total of his allowance.

That it is poſſible, in any country, to procure Food ſufficient to ſupport life with ſo ſmall a ſum, will doubtleſs appear extraordinary to an Engliſh reader;—but what would be his ſurpriſe upon ſeeing a whole army, compoſed of the fineſt, ſtouteſt, and ſtrongeſt men in the world, who are fed upon that allowance, and whoſe countenances ſhow the moſt evident marks of ruddy health, and perfect contentment?

I have already obſerved, how much I was ſtruck with the domeſtic economy of the Bavarian ſoldiers. I think the ſubject much too intereſting, not to be laid before the Public, even in all its details; and as I think it will be more ſatisfactory to hear from their own mouths an account of the manner in which theſe ſoldiers live, I ſhall tranſcribe the reports of two ſenſible non-commiſſioned officers, whom I employed to give me the information I wanted.

Theſe non-commiſſioned officers, who belong to two different regiments of grenadiers in garriſon at Munich, were recommended to me by their colonels as being very ſteady, careful men, are each at the head of a meſs conſiſting of twelve ſoldiers, themſelves reckoned in the number. The following accounts, which they gave me of their houſekeeping, and of the expences of their tables, were all the genuine reſults of actual experiments made at my particular deſire, and at my coſt.

I do not believe that uſeful information was ever purchaſed cheaper than upon this occaſion; and I fancy my reader will be of the ſame opinion when he has peruſed the following reports, which are literally tranſlated from the original German.

" In obedience to the orders of Lieut. General
" Count Rumford, the following experiments
" were made by Serjeant Wickenhof's meſs, in
" the firſt company of the firſt (or Elector's own)
" regiment of grenadiers, at Munich, on the 10th
" and 11th of June 1795.

" June 10th, 1795.

" *Bill of Fare.*

" Boiled beef, with ſoup and bread dumplins.

" Details of the expence, &c.

" *For the boiled beef and the ſoup.*

	lb.	loths.		Creutzers.
	2	0	beef [*]	16
	0	1	ſweet herbs	1
	0	$0\frac{1}{2}$	pepper	$0\frac{1}{4}$
	0	6	ſalt	$0\frac{1}{2}$
	1	$14\frac{1}{2}$	ammunition bread, cut fine	$2\frac{7}{8}$
	9	20	water	0
Total	13	10	Coſt	$20\frac{7}{8}$

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[*] The Bavarian pound (equal to $1\frac{278}{1000}$, or near one pound and a quarter Avoirdupois,) is divided into 32 loths.

" All

“ All theſe articles were put together into an “ earthen pot, and boiled two hours and a quar- “ ter. The meat was then taken out of the ſoup “ and weighed, and found to weigh 1 lb. 30 loths; “ which, divided into twelve equal portions, gave “ *five loths* for the weight of each.

“ The ſoup, with the bread, &c. weighed 9 lb. “ $30\frac{1}{2}$ loths; which, divided into twelve equal “ portions, gave for each $26\frac{7}{12}$ loths.

“ The coſt of the meat and ſoup together, “ $20\frac{7}{8}$ creutzers, divided by twelve, gives $1\frac{3}{4}$ creut- “ zers, very nearly, for the coſt of each portion.

“ *For the bread dumplins.*

	lb.	loths.		Creutzers.
	1	13	of fine ſemel bread —	10
	1	0	of fine flour — —	$4\frac{1}{2}$
	0	6	ſalt — — —	$0\frac{1}{2}$
	3	0	of water — —	0
Total	5	19	Coſt	15

“ This maſs was made into dumplins, and theſe “ dumplins were boiled half an hour in clear wa- “ ter. Upon taking them out of the water, they “ were found to weigh 5 lb. 24 loths; and divid- “ ing them into twelve equal portions, each por- “ tion weighed $15\frac{1}{3}$ loths; and the coſt of the “ whole (15 creutzers), divided by twelve, gives “ $1\frac{1}{4}$ creutzers for the coſt of each portion.

“ The meat, ſoup, and dumplins were ſerved “ all at once in the ſame diſh, and were all eaten “ together; and with this meal, (which was their

" dinner, and was eat at twelve o'clock,) each " perſon belonging to the meſs was furniſhed with " a piece of rye-bread, weighing ten loths, and " which coſt $\frac{5}{18}$ of a creutzer.—Each perſon was " likewiſe furniſhed with a piece of this bread, " weighing ten loths, for his breakfaſt;—another " piece, of equal weight, in the afternoon at four " o'clock; and another in the evening."

Analyſis of this Day's Fare.

	Each perſon received in the courſe of the day, In ſolids.	lb.	loths.	In fluids. lb.	loths.	Amount of coſt in Bavarian money. Creutzers.
	Boiled beef	0	5	—	—	$1\frac{1}{2}$
In the ſoup.	Rye-bread	0	$3\frac{7}{8}$	—	—	$0\frac{7}{16}$
	Sweet herbs	0	$0\frac{1}{12}$	—	—	
	Salt -	0	$0\frac{1}{24}$	—	—	
	Pepper -	0	$0\frac{1}{24}$	—	—	
	Water -	-	-	0	$23\frac{1}{2}$	
	Total	0	$4\frac{2}{24}$	0	$23\frac{1}{2}$	
In dumplins.	Wheaten-bread	0	$3\frac{3}{4}$			$1\frac{1}{4}$
	Ditto flour	0	$2\frac{2}{3}$			
	Salt -	0	$0\frac{1}{24}$			
	Water -	-	-	0	$7\frac{1}{12}$	
	Total	0	$6\frac{11}{24}$	0	$7\frac{7}{12}$	
Dry bread.	For breakfaſt	0	10	—	—	$2\frac{1}{2}$
	At dinner	0	10	—	—	
	In the afternoon	0	10	—	—	
	At ſupper	0	10	—	—	
	Total	1	8			
	General total	2	$24\frac{13}{24}$	0	$31\frac{1}{2}$	which coſt $5\frac{17}{48}$

The

The ammunition bread is reckoned in this eſtimate at two creutzers the Bavarian pound, which is about what it coſts at a medium; and as the daily allowance of the ſoldiers is $1\frac{1}{2}$ Bavarian pounds of this bread, this reckoned in money amounts to three *creutzers a-day;* and this added to his pay at *five creutzers a-day*, makes *eight creutzers a-day*, which is the whole of his allowance from the ſovereign for his ſubſiſtence.

But it appears from the foregoing account, that he expends for Food no more than $5\frac{17}{48}$ creutzers a-day, there is therefore a ſurplus amounting to $2\frac{31}{48}$ creutzers a-day, or very near *one-third of his whole allowance*, which remains; and which he can diſpoſe of juſt as he thinks proper.

This ſurplus is commonly employed in purchaſing beer, brandy, tobacco, &c. Beer in Bavaria coſts two creutzers a pint; brandy, or rather malt-ſpirits, from fifteen to eighteen creutzers; and tobacco is very cheap.

To enable the Engliſh reader to form, without the trouble of computation, a complete and ſatiſfactory idea of the manner in which theſe Bavarian ſoldiers are fed, I have added the following Analyſis of their fare; in which the quantity of each article is expreſſed in *Avoirdupois weight*, and its coſt in *Engliſh money*.

Analyſis.

Analyſis.

Each perſon belonging to the meſs received in the courſe of the day, June 11th, 1795.				Coſt in Engliſh money.	
	lb.	oz.		*s.*	*d.*
Dry ammunition bread -	1	$8\frac{76}{100}$	——	0	$0\frac{17}{11}$
Ammunition bread cooked in the ſoup - - -	0	$2\frac{3}{10}$	——	0	$0\frac{23}{204}$
Fine wheaten *(ſemel)* bread in the dumplins -	0	$2\frac{3}{10}$	——	0	$0\frac{19}{33}$
Total bread	1	$13\frac{46}{100}$			
Fine flour in the dumplins	0	$1\frac{65}{100}$	——	0	$0\frac{18}{33}$
Boiled beef - - -	0	$3\frac{1}{10}$	——	0	$0\frac{77}{138}$
In ſeaſoning; fine herbs, ſalt, and pepper - -	0	$0\frac{13}{100}$	——	0	$0\frac{7}{51}$
Total ſolids	2	$2\frac{34}{100}$			
Water prepared by cooking.					
In the ſoup - - -	0	14 [illegible]			
In the dumplins - -	0	4 [illegible]			
Total prepared water	1	$2\frac{84}{100}$			
Total ſolids and fluids	3	$5\frac{18}{100}$			

Total expence for each perſon $5\frac{17}{18}$ creutzers, equal to *two pence* ſterling, very nearly.

But as the Bavarian ſoldiers have not the ſame fare every day, the expences of their tables cannot be aſcertained from one ſingle experiment. I ſhall therefore return to Serjeant Wickenhof's report.

“ 11th of June 1795.

“ *Bill of Fare.*

“ Bread, dumplins, and ſoup.

“ Details of expences, &c.

“ *For the dumplins.*

lb.	loths.		Creutzers.
2	13	wheaten bread	14
0	16	butter	9
1	0	fine flour	$4\frac{1}{2}$
0	11	eggs	3
0	6	ſalt	$0\frac{1}{2}$
0	$0\frac{1}{2}$	pepper	$0\frac{1}{2}$
3	16	water	—
7	$30\frac{1}{2}$	Coſt	$31\frac{1}{2}$ creutzers.

“ This made into dumplins;—the dumplins, after being boiled, were found to weigh eight pounds eight loths, which, divided among twelve perſons, gave for each twenty-two loths.—And the coſt of the whole ($31\frac{1}{2}$ creutzers), divided by 12, gives $2\frac{15}{24}$ creutzers for each portion.

“ *For the ſoup.*

lb.	loths.		Creutzers.
1	$14\frac{1}{2}$	ammunition bread	$2\frac{7}{8}$
0	6	ſalt	$0\frac{1}{2}$
0	1	ſweet herbs	1
12	0	water	—
13	$21\frac{1}{2}$	Coſt	$4\frac{3}{8}$ creutzers.

“ This ſoup, when cooked, weighed 11 lb. 26 loths; which, divided among the twelve perſons belonging to the meſs, gave for each

“ 31½ loths; and the coſt (4⅜ creutzers), divided “ by twelve, gives nearly *three-ninths* of a creutzer “ for each portion.

“ *For bread.*

“ Four pieces of ammunition bread, weighing “ each ten loths, for each perſon,—namely, one “ piece for breakfaſt—one at dinner—one in the “ afternoon,—and one at ſupper; in all, 40 loths, “ or one pound and a quarter, coſts two creutzers “ and a half.”

Details of expences, &c. for each perſon.

	lb.	loths.			Creutzers.
For	1	8	dry bread	—	2½
For	0	22	bread dumplins	—	2$\frac{15}{24}$
For	0	31½	bread ſoup	—	0⅜
	2	30½	of Food	Coſt	5½ creutzers.

The ſame details expreſſed in Avoirdupois weight, and Engliſh money:

For each perſon

lb.	oz.			Pence
1	8$\frac{76}{105}$	dry ammunition bread	—	0$\frac{10}{11}$
0	13$\frac{6}{16}$	bread dumplins	—	0$\frac{693}{792}$
1	3½	bread ſoup	— —	0$\frac{36}{264}$
3	9$\frac{66}{105}$	of Food	— Coſt	2 pence.

"June 20th, 1795.

"Serjeant Kein's meſs, ſecond regiment of grenadiers.

"*Bill of Fare.*

"Boiled beef—bread ſoup—and liver dumplins.

"Details of expences, &c.

"For the boiled beef and ſoup.

lb.	loths.			Creutzers.
2	0	beef	— —	15
0	6½	ſalt	— —	0½
0	0½	pepper	— —	0½
0	2	ſweet herbs	— —	0½
2	24	ammunition bread	—	3¼
17	0	water	— —	—
22	1		Coſt	19½ creutzers.

"Theſe ingredients were all boiled together "two hours and five minutes; after which "the beef was taken out of the ſoup and weighed, "and was found to weigh 1 lb. 22 loths; the "ſoup weighed 15 lb.; and theſe divided equally "among the twelve perſons belonging to the meſs, "gave for each portion, 4½ loths of beef, and 1 lb. "8 loths of ſoup; and the coſt of the whole (19¾ "creutzers), divided by 18, gives $1\frac{31}{48}$ creutzers "for the coſt of each portion.

" Details of expences, &c. for the *liver dumplins.*

lb.	loths.			Creutzers
2	28	of fine *ſemel* bread	—	15
1	0	of beef liver	—	5
0	18	of fine flour	—	$2\frac{1}{2}$
0	6	of ſalt —	—	$0\frac{1}{2}$
2	24	of water —	—	—
Total 7	12		Coſt	23 creutzers.

" Theſe ingredients being made into dumplins, " the dumplins after being properly boiled were " found to weigh 8 lb.—This gave for each por- " tion $21\frac{1}{3}$ loths; and the amount of the coſt " (23 creutzers), divided by 12, the number of " the portions, gives for each $1\frac{11}{12}$ creutzers.

" The quantity of dry ammunition bread fur- " niſhed to each perſon was 1 lb. 8 loths; and this, " at two creutzers a pound, amounts to $2\frac{1}{2}$ " creutzers."

Recapitulation.

For each perſon

lb	loths.			Creutzers.
0	$4\frac{1}{2}$	of boiled beef, and }	—	$1\frac{31}{48}$
1	8	of bread ſoup }		
0	$21\frac{1}{3}$	of liver dumplins	—	$1\frac{11}{12}$
1	8	of dry bread	—	$2\frac{1}{2}$
3	$9\frac{5}{6}$	of Food	Coſt	$6\frac{3}{48}$ creutzers.

In Avoirdupois weight, and Engliſh money, it is,—for each perſon:

lb.	oz.			Pence.
0	$2\frac{8}{100}$	of boiled beef, and }	—	$0\frac{945}{1554}$
1	$8\frac{91}{100}$	of bread ſoup }		
0	$13\frac{19}{100}$	of liver dumplins	—	$0\frac{276}{396}$
1	$8\frac{6}{100}$	of dry bread	—	$0\frac{10}{11}$
4	$1\frac{54}{100}$	of Food	Coſt	$2\frac{1}{3}$ pence.

" June 21ſt, 1795.

" *Bill of Fare.*

" Boiled beef, and bread ſoup, with bread
" dumplins.

" Details of expences, &c. for the *boiled beef*
" and *bread ſoup.*

" The ſame as yeſterday,

" For the *dumplins.*

lb.	loths.			Creutzers.
2	30	ſemel bread	—	$15\frac{1}{2}$
0	18	fine flour	—	3
0	6	ſalt —	—	$0\frac{1}{2}$
3	0	water —	—	—
6	22		Coſt	19 creutzers.

" Theſe dumplins being boiled, were found to " weigh 7 lb. which gave for each perſon $18\frac{2}{3}$ loths; " and each portion coſt $1\frac{7}{12}$ creutzers.

" Dry ammunition bread furniſhed to each " perſon 1 lb. 8 loths, which coſt $2\frac{1}{2}$ creutzers.

Recapitulation.

" Each perſon belonging to the meſs received " this day:

lb.	loths.			Creutzers.
0	$4\frac{1}{2}$	of boiled beef, and		$1\frac{31}{48}$
1	8	of bread ſoup		
0	$18\frac{2}{3}$	of bread dumplins	—	$1\frac{7}{12}$
1	8	of dry bread	—	$2\frac{1}{2}$
3	$7\frac{1}{6}$	of Food	Coſt	$5\frac{35}{48}$ creutzers.

“ In *Avoirdupois weight*, and *Engliſh money*, it is,

lb.	oz.			Pence.
0	$2\frac{78}{100}$	of boiled beef, and	}	$0\frac{943}{1000}$
1	$8\frac{76}{100}$	of bread ſoup	}	
0	$11\frac{54}{100}$	of bread dumplins		[illegible]
1	$8\frac{76}{100}$	of dry bread	—	$0\frac{1}{11}$
4	0	of Food	Coſt	$2\frac{1}{12}$ pence.

“ June 22d, 1795.

“ *Bill of Fare.*

“ *Bread ſoup* and *meat dumplins.*

“ Details of expences, &c.

lb.	loths.			Creutzers.
2	0	of beef	—	15
2	30	of ſemel bread	—	$15\frac{1}{2}$
0	18	of fine flour	—	3
0	1	of pepper	—	1
0	12	of ſalt	—	1
0	2	of ſweet herbs	—	$0\frac{1}{2}$
2	24	of ammunition bread		$3\frac{1}{4}$
2	16	of water to the dumplins		
			Coſt	$39\frac{1}{4}$ creutzers.

“ The meat being cut fine, or minced, was “ mixed with the ſemel or wheaten bread; and “ theſe with the flour, and a due proportion of “ ſalt, were made into dumplins, and boiled in the “ ſoup.—Theſe dumplins when boiled, weighed “ 10 lb. which, divided into 12 equal portions, “ gave $20\frac{2}{3}$ loths for each.

“ The ſoup weighed 15 lb. which gave 1 lb. “ 8 loths for each portion.—Of dry ammunition “ bread, each perſon received 1 lb. 8 loths, which “ coſt $2\frac{1}{2}$ creutzers.

Recapi-

Recapitulation.

"Each perſon received this day

lb.	loths.			Creutzers.
0	$20\frac{2}{3}$	of meat dumplins, and		$3\frac{13}{48}$
1	8	of bread ſoup		
1	8	of ammunition bread		$2\frac{1}{2}$
3	$4\frac{2}{3}$	of Food	Coſt	$5\frac{37}{48}$ creutzers.

"In *Avoirdupois weight*, and *Engliſh money*, it is,

lb.	oz.			Pence.
0	$12\frac{77}{100}$	of meat dumplins, and		$1\frac{100}{1354}$
1	$8\frac{76}{100}$	of bread ſoup		
1	$8\frac{76}{100}$	of ammunition bread		$0\frac{10}{11}$
3	$14\frac{29}{100}$	of Food	Coſt	$2\frac{1}{10}$ pence.

The reſults of all theſe experiments, (and of many more which I could add,) ſhow that the Bavarian ſoldier can live,—and the fact is that he actually does live,—upon a little more than *two-thirds* of his allowance.—Of the *five creutzers* a-day which he receives in money, he ſeldom puts more than *two creutzers and an half*, and never more than *three creutzers* into the meſs; ſo that at leaſt *two-fifths* of his pay remains, after he has defrayed all the expences of his ſubſiſtence; and as he is furniſhed with every article of his clothing by the ſovereign, and no ſtoppage is ever permitted to be made of any part of his pay, on any pretence whatever, *there is no ſoldier in Europe whoſe ſituation is more comfortable.*

Though the ammunition bread with which he is furniſhed is rather coarſe and brown, being made of rye-meal, with only a ſmall quantity of the coarſer part of the bran ſeparated from it, yet it is not only wholeſome, but very nouriſhing; and for making ſoup it is even more palatable than wheaten bread. Moſt of the ſoldiers, however, in the Elector's ſervice, and particularly thoſe belonging to the Bavarian regiments, make a practice of ſelling a great part of their allowance of ammunition bread, and with the money they get for it, buy the beſt wheaten bread that is to be had; and many of them never taſte brown bread but in their ſoup.

The ammunition bread is delivered to the ſoldiers every fourth day, in loaves, each loaf being equal to two rations; and it is a rule generally eſtabliſhed in the meſſes, for each ſoldier to furniſh one loaf for the uſe of the meſs every twelfth day, ſo that he has five-ſixths of his allowance of bread, which remains at his diſpoſal.

The foregoing account of the manner in which the Bavarian ſoldiers are fed, will, I think, ſhow moſt clearly the great importance of making ſoldiers live together in meſſes.—It may likewiſe furniſh ſome uſeful hints to thoſe who may be engaged in feeding the Poor; or in providing Food for ſhip's companies, or other bodies of men who are fed in common.

With regard to the expence of fuel in theſe experiments, as the victuals were cooked in earthen pots, over an open fire, the conſumption of fire-wood was very great.

On the 10th of June, when 9 lb. 30½ loths of ſoup, 1 lb. 28 loths of meat, and 5 lb. 24 loths of bread dumplins, in all 17 lb. 18½ of Food were prepared, and the proceſs of cooking, from the time the fire was lighted till the victuals were done, laſted two hours and forty-five minutes, and twenty-nine pounds, Bavarian weight, of fire-wood were conſumed.

On the 11th of June, when 11 lb. 26 loths of bread ſoup, and 8 lb. 8 loths of bread dumplins, in all 20 lb. 2 loths of Food were prepared, the proceſs of cooking laſted one hour and thirty minutes;—and ſeventeen pounds of wood were conſumed.

On the 20th of June, in Serjeant Kein's meſs, 15 lb. of ſoup; 1 lb. 22 loths of meat, and 8 lb. of liver dumplins, in all 24 lb. 22 loths of Food were prepared, and though the proceſs of cooking laſted two hours and forty-five minutes, only 27½ lb. of fire-wood were conſumed.

On the 21ſt of June, the ſame quantity of ſoup and meat, and 7 lb. of bread dumplins, in all 23 lb. 22 loths of Food were prepared in two hours and thirty minutes, with the conſumption of 18½ lb. of wood.

On the 22d of June, 15 lb. of ſoup, and 10 lb. of meat dumplins, in all 25 lb. of Food, were cooked in two hours and forty-five minutes, and the wood conſumed was 18 lb. 10 loths.

The following table will ſhow, in a ſtriking and ſatisfactory manner, the expence of fuel in theſe experiments:

Date of the Experiments.	Time employed in cooking.		Quantity of Food prepared.		Quantity of Wood conſumed.	Quantity of Wood to 1 lb. of Food.
June 1795.	Hours.	min.	lb	loths.	lb.	
10th,	2	45	17	18½	29	
11th,	1	30	20	2	17	
20th,	2	45	24	22	17½	
21ſt,	2	30	23	22	18½	
22d,	2	45	25	0	18¼	
Sums 5	12	15	111	0½	100¼	
Means	2	23	22	0⅕	20 $\frac{1}{20}$	$\frac{10}{11}$ lb.

The mean quantity of Food prepared daily in five days being 22 lb. very nearly, and the mean quantity of fire-wood conſumed being 20$\frac{1}{20}$ lb.; this gives $\frac{10}{11}$ lb. of wood for each pound of Food.

But it has been found by actual experiment, made with the utmoſt care, in the new kitchen of the Houſe of Induſtry at Munich, and often repeated, that 600 lb. of Food, (of the Soup No. I. given to the Poor,) may be cooked with the conſumption of only 44 lb. of pine-wood. And hence it appears how very great the waſte of fuel muſt be in all culinary proceſſes, as they are commonly performed; for though the time taken up in cooking the ſoup for the Poor is, at a medium, more than *four hours and a half*, while that employed by the ſoldiers in their cooking is leſs than *two hours and an half*; yet the quantity of fuel conſumed by the latter is near *thirteen times* greater than that employed in the public kitchen of the Houſe of Induſtry.

But I muſt not anticipate here a matter which is to be the ſubject of a ſeparate Eſſay; and which, from its great importance, certainly deſerves to be carefully and thoroughly inveſtigated.

CHAP. V.

Of the great Importance of making Soldiers eat together in regular Meſſes.—The Influence of ſuch economical Arrangements extends even to the moral Character of thoſe who are the Objects of them.—Of the Expence of feeding Soldiers in Meſſes.—Of the ſurpriſing Smallneſs of the Expence of feeding the Poor at Munich.—Specific Propoſals reſpecting the feeding of the Poor in Great Britain, with Calculations of the Expence, at the preſent Prices of Proviſions.

ALL thoſe who have been converſant in military affairs muſt have had frequent opportunities of obſerving the ſtriking difference there is, even in the appearance of the men, between regiments in which meſſes are eſtabliſhed, and Food is regularly provided under the care and inſpection of the Officers; and others, in which the ſoldiers are left individually to ſhift for themſelves. And the difference which may be obſerved between ſoldiers who live in meſſes, and are regularly fed, and others who are not, is not confined merely to their external appearance: the influence of theſe cauſes extends much farther, and even the *moral character* of the man is affected by them.

Peace

Peace of mind, which is as eſſential to contentment and happineſs as it is to virtue, depends much upon order and regularity in the common affairs of life; and in no caſe are order and method more neceſſary to happineſs, (and conſequently to virtue,) than in that, where the preſervation of health is connected with the ſatisfying of hunger; an appetite whoſe cravings are ſometimes as inordinate as they are inſatiable.

Peace of mind depends likewiſe much upon economy, or the means uſed for preventing pecuniary embarraſſments; and the ſavings to ſoldiers in providing Food, which ariſe from houſekeeping in meſſes of ten or twelve perſons who live together, is very great indeed.

But great as theſe ſavings now are, I think they might be made ſtill more conſiderable; and I ſhall give my reaſons for this opinion.

Though the Bavarian ſoldiers live at a very ſmall expence, little more than *two-pence* ſterling a-day, yet when I compare this ſum, ſmall as it is, with the expence of feeding the Poor in the Houſe of Induſtry at Munich, which does not amount to more than *two farthings* a-day, even including the coſt of the piece of dry rye-bread, weighing ſeven ounces Avoirdupois *, which is given them in their hands, at dinner, but which they ſeldom eat at dinner, but commonly carry home in their pockets for their ſuppers;—when I compare, I ſay, this ſmall ſum, with the daily expence of the ſoldiers for their ſubſiſtence, I find reaſon to conclude, either that the ſoldiers might be fed cheaper, or that the Poor muſt be abſolutely ſtarved upon their allowance. That the latter is not the caſe, the healthy countenances of the Poor, and the air of placid contentment which always accompanies them, as well in the dining-hall as in their working-rooms, affords at the ſame time the moſt intereſting and moſt ſatisfactory proof poſſible.

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* For each 100 lb. Bavarian weight, (equal to 123 $\frac{84}{100}$ lb. Avoirdupois,) of rye-meal, which the baker receives from the magazine, he is obliged to deliver ſixty four loaves of bread, each loaf weighing 2 lb. 5$\frac{1}{2}$ loths; equal to 2 lb. 10 oz. Avoirdupois;—and as each loaf is divided into ſix portions, this gives ſeven ounces Avoirdupois for each portion. Hence it appears that 100 lb. of rye-meal give 149 lb.

Were they to go home in the courſe of the day, it might be ſuſpected that they got ſomething at home to eat, in addition to what they receive from the public kitchen of the Eſtabliſhment;—but this they ſeldom or ever do; and they come to the houſe ſo early in the morning, and leave it ſo late at night, that it does not ſeem probable that they could find time to cook any thing at their own lodgings.

Some of them, I know, make a conſtant practice of giving themſelves a treat of a pint of beer at night, after they have finiſhed their work; but I do not believe they have any thing elſe for their

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149 lb. of bread, for ſixty-four loaves, at 2 lb. $5\frac{1}{2}$ loths each, weigh 149 lb.—When this bread is reckoned at two creutzers a Bavarian pound, (which is about what it coſts at a medium,) one portion coſts juſt $\frac{1}{16}$ of a creutzer, or $\frac{135}{512}$ of a penny ſterling, which is ſomething leſs than one farthing.

ſuppers, except it be the bread which they carry home from the Houſe of Induſtry.

I muſt confeſs, however, very fairly, that it always appeared to me quite ſurpriſing, and that it is ſtill a myſtery which I do not clearly underſtand, how it is poſſible for theſe poor people to be ſo comfortably fed upon the ſmall allowances which they receive.—The facts, however, are not only certain, but they are notorious. Many perſons of the moſt reſpectable character in this country, (Great Britain,) as well as upon the Continent, who have viſited the Houſe of Induſtry at Munich, can bear witneſs to their authenticity; and they are ſurely not the leſs intereſting for being extraordinary.

It muſt however be remembered, that what formerly coſt *two farthings* in Bavaria, at the mean price of proviſions in that country, coſts *three* farthings at this preſent moment; and would probably coſt *ſix* in London, and in moſt other parts of Great Britain: but ſtill, it will doubtleſs appear almoſt incredible, that a comfortable and nouriſhing meal, ſufficient for ſatisfying the hunger of a ſtrong man, may be furniſhed in London, and at this very moment, when proviſions of all kinds are ſo remarkably dear, at *leſs than three farthings*. The fact, however, is moſt certain, and may eaſily be demonſtrated by making the experiment.

Suppoſing that it ſhould be neceſſary, in feeding the Poor in this country, to furniſh them with three meals a-day, even that might be done at a very ſmall expence, were the ſyſtem of feeding them adopted which is here propoſed. The amount of that expence would be as follows:

	Pence.	Farths.
For breakfaſt, 20 ounces of the Soup No. II. compoſed of pearl barley, peas, potatoes, and fine wheaten bread (See page 210.)	0	2½
For dinner, 20 ounces of the ſame Soup, and 7 ounces of rye-bread — —	1	2
For ſupper, 20 ounces of the ſame Soup —	0	2½
In all 4 lb. 3 oz. of Food *, which would coſt	2	3

Should it be thought neceſſary to give a little meat at dinner, this may beſt be done by mixing it, cut fine, or minced, in bread dumplins; or when bacon, or any kind of ſalted or ſmoked meat is given, to cut it fine and mix it with the bread which is eaten in the ſoup. If the bread be fried, the Food will be much improved; but this will be attended with ſome additional expence.—Rye-bread is as good, if not better, for frying, than bread made of wheat flour; and it is commonly not half ſo dear.—Perhaps rye-bread fried might be furniſhed almoſt as cheap as wheaten bread not fried; and if this could be done, it would certainly be a very great improvement.

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* This allowance is evidently much too large; but I was willing to ſhow what the expence of feeding the Poor would be at *the higheſt calculation*. I have eſtimated the 7 ounces of rye-bread, mentioned above, at what it ought to coſt when rye is 7s. 6d. the buſhel, its preſent price in London.

There is another way by which theſe cheap ſoups may be made exceedingly palatable and ſavoury;—which is by mixing with them a very ſmall quantity of *red herrings*, minced very fine, or pounded in a mortar.—There is no kind of cheap Food, I believe, that has ſo much taſte as red herrings, or that communicates its flavour with ſo much liberality to other eatables; and to moſt palates it is remarkably agreeable.

Cheeſe may likewiſe be made uſe of for giving an agreeable reliſh to theſe ſoups; and a very ſmall quantity of it will be ſufficient for that purpoſe, provided it has a ſtrong taſte, and is properly applied.—It ſhould be grated to a powder with a grater, and a ſmall quantity of this powder thrown over the ſoup, *after it is diſhed out.*—This is frequently done at the ſumptuous tables of the rich, and is thought a great delicacy; while the Poor, who have ſo few enjoyments, have not been taught to avail themſelves of this, which is ſo much within their reach.

Thoſe whoſe avocations call them to viſit diſtant countries, and thoſe whoſe fortune enables them to travel for their amuſement or improvement, have many opportunities of acquiring uſeful information; and in conſequence of this intercourſe with ſtrangers, many improvements, and more *refinements*, have been introduced into this country; but the moſt important advantages that *might* be derived from an intimate knowledge of the manners and cuſtoms of different nations,—the introduction of improvements tending to facilitate the means of ſubſiſtence, and to increaſe the comforts and conveniences of the moſt neceſſitous and moſt numerous claſſes of ſociety,—have been, alas! little attended to. Our extenſive commerce enables us to procure, and we do actually import moſt of the valuable commodities which are the produce either of the ſoil or the ocean, or of the induſtry of man in all the various regions of the habitable globe;—*but the reſult of the* EXPERIENCE OF AGES *reſpecting the uſe that can be made of theſe commodities* has ſeldom been thought worth importing! I never ſee *maccaroni* in England, or *polenta* in Germany, upon the tables of the rich, without lamenting that thoſe cheap and wholeſome luxuries ſhould be monopolized by thoſe who ſtand leaſt in need of them: while the Poor, who, one would think, ought to be conſidered as having almoſt an *excluſive* right to them, (as they were both invented by the Poor of a neighbouring nation,) are kept in perfect ignorance of them.

But theſe two kinds of Food are ſo palatable, wholeſome, and nouriſhing, and may be provided ſo eaſily, and at ſo very cheap a rate in all countries, and particularly in Great Britain, that I think I cannot do better than to devote a few pages to the examination of them;—and I ſhall begin with Polenta, or *Indian corn*, as it is called in this country.

CHAP. VI.

Of INDIAN CORN.—*It affords the cheapeſt and moſt nouriſhing Food known.—Proofs that it is more nouriſhing than Rice.—Different Ways of preparing or cooking it.—Computation of the Expence of feeding a Perſon with it, founded on Experiment.—Approved Receipt for making an* INDIAN PUDDING.

I CANNOT help increaſing the length of this Eſſay much beyond the bounds I originally aſſigned to it, in order to have an opportunity of recommending a kind of Food which I believe to be beyond compariſon the moſt nouriſhing, cheapeſt, and moſt wholeſome that can be procured for feeding the Poor.—This is Indian Corn, a moſt valuable production; and which grows in almoſt all climates; and though it does not ſucceed remarkably well in Great Britain, and in ſome parts of Germany, yet it may eaſily be had in great abundance, from other countries; and commonly at a very low rate.

The common people in the northern parts of Italy live almoſt entirely upon it; and throughout the whole Continent of America it makes a principal article of Food.—In Italy it is called *Polenta*, where it is prepared or cooked in a variety of ways, and forms the baſis of a number of very nouriſhing diſhes.—The moſt common way however of uſing it in that country is to grind it into meal, and with water to make it into a thick kind of pudding, like what in this country is called a haſty-pudding, which is eaten with various kinds of ſauce, and ſometimes without any ſauce.

In the northern parts of North America, the common houſehold bread throughout the country is compoſed of one part of Indian meal and one part of rye meal; and I much doubt whether a more wholeſome, or more nouriſhing kind of bread can be made.

Rice is univerſally allowed to be very nouriſhing,—much more ſo even than wheat; but there is a circumſtance well known to all thoſe who are acquainted with the details of feeding the negro ſlaves in the ſouthern ſtates of North America, and in the Weſt Indies, that would ſeem to prove, in a very deciſive and ſatisfactory manner, that *Indian Corn is even more nouriſhing than rice.*—In thoſe countries, where rice and Indian Corn are both produced in the greateſt abundance, the negroes have frequently had their option between theſe two kinds of Food; and have invariably preferred the latter.—The reaſons they give for this preference they expreſs in ſtrong, though not in very delicate terms.—They ſay that "*Rice turns to water in* "*their bellies*, and runs off;"—but "Indian Corn "*ſtays with them, and makes ſtrong to work.*"

This account of the preference which negroes give to Indian Corn for Food, and of their reaſons for this preference, was communicated to me by two gentlemen of moſt reſpectable character, well known in England, and now reſident in London, who were formerly planters; one in Georgia, and the other in Jamaica.

The nutritive quality which Indian Corn poſſeſſes, in a moſt eminent degree, when employed for fattening hogs and poultry, and for giving ſtrength to working oxen, has long been univerſally known and acknowledged in every part of North America; and nobody in that country thinks of employing any other grain for thoſe purpoſes.

All theſe facts prove to a demonſtration that India Corn poſſeſſes very extraordinary nutritive powers; and it is well known that there is no ſpecies of grain that can be had ſo cheap, or in ſo great abundance;—it is therefore well worthy the attention of thoſe who are engaged in providing cheap and wholeſome Food for the Poor,—or in taking meaſures for warding off the evils which commonly attend a general ſcarcity of proviſions, to conſider in time, how this uſeful article of Food may be procured in large quantities, and how the introduction of it into common uſe can moſt eaſily be effected:

In regard to the manner of uſing Indian Corn, there are a vaſt variety of different ways in which it may be prepared, or cooked, in order to its being uſed as Food.—One ſimple and obvious way of uſing it, is to mix it with wheat, rye, or barley meal, in making bread; but when it is uſed for making bread, and particularly when it is mixed with wheat flour, it will greatly improve the quality of the bread if the Indian meal, (the coarſer part of the bran being firſt ſeparated from it by ſifting,) be previouſly mixed with water, and boiled for a conſiderable length of time,—two or three hours for inſtance, over a ſlow fire, before the wheat meal or flour is added to it.—This boiling, which, if the proper quantity of water is employed, will bring the maſs to the conſiſtency of a thin pudding, will effectually remove a certain diſagreeable *raw taſte* in the Indian Corn, which ſimple baking will not entirely take away; and the wheat flour being mixed with this pudding after it has been taken from the fire and cooled, and the whole well kneaded together, may be made to riſe, and be formed into loaves, and baked into bread, with the ſame facility that bread is made of wheat flour alone, or of any mixtures of different kinds of meal.

When the Indian meal is previouſly prepared by boiling, in the manner here deſcribed, a moſt excellent, and very palatable kind of bread, not inferior to wheaten bread, may be made of equal parts of this meal and of common wheat flour.

But the moſt ſimple, and I believe the beſt, and moſt economical way of employing Indian Corn as Food, is to make it into puddings.—There is, as I have already obſerved, a certain rawneſs in the taſte of it, which nothing but long boiling can remove; but when that diſagreeable taſte is removed, it becomes extremely palatable; and that it is remarkably wholeſome, has been proved by ſo much experience that no doubts can poſſibly be entertained of that fact.

The culture of it requires more labour than moſt other kinds of grain; but, on the other hand, the produce is very abundant, and it is always much cheaper than either wheat or rye.—The price of it in the Carolinas, and in Georgia, has often been as low as eighteen pence, and ſometimes as *one ſhilling* ſterling *per* buſhel ;—but the Indian Corn which is grown in thoſe ſouthern ſtates is much inferior, both in weight and in its qualities, to that which is the produce of colder climates.—Indian Corn of the growth of Canada, and the New England ſtates, which is generally thought to be worth twenty *per cent.* more *per* buſhel than that which is grown in the ſouthern ſtates, may commonly be bought for two and ſixpence, or three ſhillings a buſhel.

It is now three ſhillings and ſixpence a buſhel at Boſton; but the prices of proviſions of all kinds have been much raiſed of late in all parts of America, owing to the uncommonly high prices which are paid for them in the European markets ſince the commencement of the preſent war.

Indian Corn and rye are very nearly of the ſame weight, but the former gives rather more flour, when ground and ſifted, than the latter.—I find by a report of the Board of Agriculture, of the 10th of November 1795, that three buſhels of Indian Corn weighed 1 cwt. 1 qr. 18 lb. (or 53 lb. each buſhel), and gave 1 cwt. 20 lb. of flour and 26 lb. of bran; while three buſhels of rye, weighing 1 cwt. 1 qr. 22 lb. (or 54 lb. the buſhel), gave only 1 cwt. 17 lb. of flour and 28 lb. of bran.—But I much ſuſpect that the Indian Corn uſed in theſe experiments was not of the beſt quality [*].

I ſaw ſome of it, and it appeared to me to be of that kind which is commonly grown in the ſouthern ſtates of North America.—Indian Corn of the growth of colder climates is, probably, at leaſt as heavy as wheat, which weighs at a medium about 58 lb. *per* buſhel, and I imagine it will give nearly as much flour *.

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[*] Farther inquiries which have ſince been made, have proved that theſe ſuſpicions were not without foundation.

In regard to the moſt advantageous method of uſing Indian Corn as Food, I would ſtrongly recommend, particularly when it is employed for feeding the Poor, a diſh made of it that is in the higheſt eſtimation throughout America, and which is really very good, and very nouriſhing. This is called *haſty-pudding*; and it is made in the following manner: A quantity of water, proportioned to the quantity of haſty-pudding intended to be made, is put over the fire in an open iron pot, or kettle, and a proper quantity of ſalt for ſeaſoning the pudding being previouſly diſſolved in the water, Indian meal is ſtirred into it, by little and little, with a wooden ſpoon with a long handle, while the water goes on to be heated and made to boil;—great care being taken to put in the meal by very ſmall quantities, and by ſifting it ſlowly through the fingers of the left hand, and ſtirring the water about very briſkly at the ſame time with the wooden ſpoon, with the right hand, to mix the meal with the water in ſuch a manner as to prevent lumps being formed.—The meal ſhould be added ſo ſlowly, that, when the water is brought to boil, the maſs ſhould not be thicker than water-gruel, and half an hour more, at leaſt, ſhould be employed to add the additional quantity of meal neceſſary for bringing the pudding to be of the proper conſiſtency; during which time it ſhould be ſtirred about continually, and kept conſtantly boiling.—The method of determining when the pudding has acquired the proper conſiſtency is this;—the wooden ſpoon uſed for ſtirring it being placed upright in the middle of the kettle, if it falls down, more meal muſt be added; but if the pudding is ſufficiently thick and adheſive to ſupport it in a vertical poſition, it is declared to be *proof;* and no more meal is added. —If the boiling, inſtead of being continued only half an hour, be prolonged to three quarters of an hour, or an hour, the pudding will be conſiderably improved by this prolongation.

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* Since writing the above, I have had an opportunity of aſcertaining, in the moſt deciſive and ſatisfactory manner, the facts relative to the weight of Indian Corn of the growth of the northern ſtates of America. A friend of mine, an American gentleman, reſident in London, (George Erving, Eſq. of Great George-ſtreet, Hanover-ſquare,) who, in common with the reſt of his countrymen, ſtill retains a liking for Indian Corn, and imports it regularly every year from America, has juſt received a freſh ſupply of it, by one of the laſt ſhips which has arrived from Boſton in New England; and at my deſire he weighed a buſhel of it, and found it to weigh 61 lb.: It coſt him at Boſton three ſhillings and ſixpence ſterling the buſhel.

This haſty-pudding, when done, may be eaten in various ways.—It may be put, while hot, by ſpoonfuls into a bowl of milk, and eaten with the milk with a ſpoon, in lieu of bread; and uſed in this way it is remarkably palatable.—It may likewiſe be eaten, while hot, with a ſauce compoſed of butter and brown ſugar, or butter and molaſſes, with or without a few drops of vinegar; and however people who have not been accuſtomed to this American cookery may be prejudiced againſt it, they will find upon trial that it makes a moſt excellent diſh, and one which never fails to be much liked by thoſe who are accuſtomed to it.—The univerſal fondneſs of Americans for it proves that it muſt have ſome merit;—for in a country which produces all the delicacies of the table in the greateſt abundance, it is not to be ſuppoſed that a whole nation ſhould have a taſte ſo depraved as to give a decided preference to any particular ſpecies of Food which has not ſomething to recommend it.

The manner in which haſty-pudding is eaten with butter and ſugar, or butter and molaſſes, in America, is as follows: The haſty-pudding being ſpread out equally upon a plate, while hot, an excavation is made in the middle of it, with a ſpoon, into which excavation a piece of butter, as large as a nutmeg, is put; and upon it, a ſpoonful of brown ſugar, or more commonly of molaſſes.—The butter being ſoon melted by the heat of the pudding, mixes with the ſugar, or molaſſes, and forms a ſauce, which, being confined in the excavation made for it, occupies the middle of the plate.—The pudding is then eaten with a ſpoon, each ſpoonful of it being dipt into the ſauce before it is carried to the mouth; care being had in taking it up, to begin on the outſide, or near the brim of the plate, and to approach the center by regular advances, in order not to demoliſh too ſoon the excavation which forms the reſervoir for the ſauce.

If I am prolix in theſe deſcriptions, my reader muſt excuſe me; for perſuaded as I am that the action of Food upon the palate, and conſequently the pleaſure of eating, depends very much indeed upon the *manner* in which the Food is applied to the organs of taſte, I have thought it neceſſary to mention, and even to illuſtrate in the cleareſt manner, every circumſtance which appeared to me to have influence in producing thoſe important effects.

In the caſe in queſtion, as it is the ſauce alone which gives taſte and palatableneſs to the Food, and conſequently is the cauſe of the pleaſure enjoyed in eating it, the importance of applying, or uſing it, in ſuch a manner as to produce the greateſt and moſt durable effect poſſible on the organs of taſte, is quite evident; and in the manner of eating this Food which has here been deſcribed and recommended, the ſmall quantity of ſauce uſed, (and the quantity muſt be ſmall, as it is the expenſive article,) is certainly applied to the palate more immediately;—by a greater ſurface;—and in a ſtate of greater condenſation;—and conſequently acts upon it more powerfully;—and continues to act upon it for a greater length of time, than it could well be made to do when uſed in any other way.—Were it more intimately mixed with the pudding, for inſtance, inſtead of being merely applied to its external ſurface, its action would certainly be much leſs powerful; and were it poured over the pudding, or was proper care not taken to keep it confined in the little excavation or reſervoir made in the midſt of the pudding to contain it, much of it would attach itſelf and adhere to the ſurface of the plate, and be loſt.

Haſty-pudding has this in particular to recommend it,—and which renders it ſingularly uſeful as Food for poor families,—that when more of it is made at once than is immediately wanted, what remains may be preſerved good for ſeveral days, and a number of very palatable diſhes may be made of it.—It may be cut in thin ſlices, and toaſted before the fire, or on a gridiron, and eaten inſtead of bread, either in milk, or in any kind of ſoup or pottage; or with any other kind of Food with which bread is commonly eaten; or it may be eaten cold, without any preparation, with a warm ſauce made of butter, molaſſes, or ſugar, and a little vinegar.—In this laſt-mentioned way of eating it, it is quite as palatable, and I believe more wholeſome, than when eaten warm; that is to ſay, when it is firſt made.—It may likewiſe be put cold, without any preparation, into hot milk; and this mixture is by no means unpalatable, particularly if it be ſuffered to remain in the milk till it is warmed throughout, or if it be boiled in the milk for a few moments.

A favourite diſh in America, and a very good one, is made of cold boiled cabbage chopped fine, with a ſmall quantity of cold boiled beef, and ſlices of cold haſty-pudding, all fried together in butter or hog's lard.

Though haſty-puddings are commonly made of Indian meal, yet it is by no means uncommon to make them of equal parts of Indian, and of rye meal;—and they are ſometimes made of rye meal alone; or of rye meal and wheat flour mixed.

To give a ſatisfactory idea of the expence of preparing haſty-puddings in this country, (England,)

land,) and of feeding the Poor with them, I made the following experiment:—About 2 pints of water, which weighed juſt 2 lb. Avoirdupois, were put over the fire in a ſaucepan of a proper ſize, and 58 grains in weight or $\frac{1}{120}$ of a pound of ſalt being added, the water was made to boil.—During the time that it was heating, ſmall quantities of Indian meal were ſtirred into it, and care was taken, by moving the water briſkly about, with a wooden ſpoon, to prevent the meal from being formed into lumps; and as often as any lumps were obſerved, they were carefully broken with the ſpoon;—the boiling was then continued half an hour, and during this time the pudding was continually ſtirred about with the wooden ſpoon, and ſo much more meal was added as was found neceſſary to bring the pudding to be of the proper conſiſtency.

This being done, it was taken from the fire and weighed, and was found to weigh juſt 1 lb. $11\frac{1}{2}$ oz. —Upon weighing the meal which remained, (the quantity firſt provided having been exactly determined by weight in the beginning of the experiment,) it was found that juſt *half a pound* of meal had been uſed.

From the reſult of this experiement it appears, that for each pound of Indian meal employed in making haſty-puddings, we may reckon 3 lb. 9 oz. of the pudding.—And the expence of providing this kind of Food, or the coſt of it by the pound, at the preſent high price of grain in this country, may be ſeen by the following computation:

	£.	s.	d.
Half a pound of Indian meal, (the quantity uſed in the foregoing experiment,) at 2d. a pound or 7 s. 6 d. a buſhel for the corn, (the price ſtated in the report of the Board of Agriculture of the 10th of November 1795, ſo often referred to,) coſts	0	0	1
58 grains or $\frac{1}{120}$ of a pound of ſalt, at 2 d. *per* pound	0	0	0$\frac{1}{60}$
Total,	0	0	1$\frac{1}{60}$

Now, as the quantity of pudding prepared with theſe ingredients was 1 lb 11$\frac{1}{2}$ oz. and the coſt of the ingredients amounted to *one penny and one ſixtieth of a penny*, this gives for the coſt of one pound of haſty-pudding $\frac{71}{120}$ of a penny, or 2$\frac{1}{3}$ farthings, very nearly.—It muſt however be remembered that the Indian Corn is here reckoned at a very exorbitant price indeed *.

But before it can be determined what the expence will be of feeding the Poor with this kind of Food, it will be neceſſary to aſcertain how much of it will be required to give a comfortable meal to one perſon; and how much the expence will be of providing the ſauce for that quantity of pudding.—To determine theſe two points with ſome degree of preciſion, I made the following experiment:—Having taken my breakfaſt, conſiſting of two diſhes of coffee, with cream, and a dry toaſt,

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* The price of Indian meal as it is here eſtimated,—(2d. a pound,)—is at leaſt twice as much as it would coſt in Great Britain in common years, if care was taken to import it at the cheapeſt rate.

at my uſual hour of breakfaſting, (nine o'clock in the morning,) and having faſted from that time till five o'clock in the afternoon, I then dined upon my haſty-pudding, with the American ſauce already deſcribed, and I found, after my appetite for Food was perfectly ſatisfied, and I felt that I had made a comfortable dinner, that I had eaten juſt 1 lb. 1½ oz. of the pudding; and the ingredients, of which the ſauce which was eaten with it was compoſed, were half an ounce of butter; three quarters of an ounce of molaſſes; and 21 grains or $\frac{1}{342}$ of a pint of vinegar.

The coſt of this dinner may be ſeen by the following computation:

For the Pudding.

	Farthings.
1 lb. 1½ oz. of haſty-pudding, at 2⅓ farthings a pound	2½

For the Sauce.

Half an ounce of butter, at 10 d. *per* pound	1¼
Three quarters of an ounce of molaſſes, at 6d. *per* pound	1
$\frac{1}{352}$ of a pint of vinegar, at 2 s. 8 d. the gallon	0 $\frac{1}{16}$
Total for the Sauce,	2 $\frac{5}{16}$ farthings.
Sum total of expences for this dinner, for the pudding and its ſauce	4 $\frac{13}{16}$ farthings

Or ſomething leſs than one penny farthing.

I believe it would not be eaſy to provide a dinner in London, at this time, when proviſions of all kinds are ſo dear, equally grateful to the palate and ſatisfying to the cravings of hunger, at a ſmaller expence.—And that this meal was ſufficient for all the purpoſes of nouriſhment appears from hence, that though I took my uſual exerciſe, and did not ſup after it, I neither felt any particular faintneſs, nor any unuſual degree of appetite for my breakfaſt next morning.

I have been the more particular in my account of this experiment, to ſhow in what manner experiments of this kind ought, in my opinion, to be conducted;—and alſo to induce others to engage in theſe moſt uſeful inveſtigations.

It will not eſcape the obſervation of the reader, that ſmall as the expence was of providing this dinner, yet very near one-half of that ſum was laid out in purchaſing the ingredients for the ſauce.—But it is probable that a conſiderable part of that expence might be ſaved.—In Italy, *polenta*, which is nothing more than haſty-pudding made with Indian meal and water, is very frequently, and I believe commonly eaten without any ſauce, and when on holidays or other extraordinary occaſions they indulge themſelves by adding a ſauce to it, this ſauce is far from expenſive.—It is commonly nothing more than a very ſmall quantity of butter ſpread over the flat ſurface of the hot polenta which is ſpread out thin in a large platter; with a little Parmezan or other ſtrong cheeſe, reduced to a coarſe powder by grating it with a grater, ſtrewed over it.

Perhaps this Italian ſauce might be more agreeable to an Engliſh palate than that commonly uſed in America. It would certainly be leſs expenſive, as much leſs butter would be required, and as cheeſe in this country is plenty and cheap. But whatever may be the ſauce uſed with Food prepared of Indian Corn, I cannot too ſtrongly recommend the uſe of that grain.

While I was employed in making my experiment upon haſty-pudding, I learnt from my ſervant, (a Bavarian,) who aſſiſted me, a fact which gave me great pleaſure, as it ſerved to confirm me in the opinion I have long entertained of the great merit of Indian Corn.—He aſſured me that polenta is much eſteemed by the peaſantry in Bavaria, and that it makes a very conſiderable article of their Food; that it comes from Italy through the Tyrol; and that it is commonly ſold in Bavaria *at the ſame price as wheat flour!* Can there be ſtronger proofs of its merit?

The negroes in America prefer it to rice; and the Bavarian peaſants to wheat.—Why then ſhould not the inhabitants of this iſland like it? It will not, I hope, be pretended, that it is in this favoured ſoil alone that prejudices take ſuch deep root that they are never to be eradicated, or that there is any thing peculiar in the conſtruction of the palate of an Engliſhman.

The objection that may be made to Indian Corn,—that it does not thrive well in this country,—is of no weight. The ſame objection might, with equal reaſon, be made to rice, and twenty other articles of Food now in common uſe.

It has ever been conſidered, by thoſe verſed in the ſcience of political economy, as an object of the firſt importance to keep down the prices of proviſions, particularly in manufacturing and commercial countries;—and if there be a country on earth where this ought to be done, it is ſurely Great Britain:—and there is certainly no country which has the means of doing it ſo much in its power.

But the progreſs of national improvements muſt be very ſlow, however favorable other circumſtances may be, where thoſe citizens, who, by their rank and ſituation in ſociety, are deſtined to direct the public opinion, *affect* to conſider the national prejudices as unconquerable *.—But to return to the ſubject immediately under conſideration.

Though haſty-pudding is, I believe, the cheapeſt Food that can be prepared with Indian Corn, yet ſeveral other very cheap diſhes may be made of it, which in general are conſidered as being more palatable, and which, moſt probably, would be preferred in this country; and among theſe, what in America is called a *plain Indian pudding* certainly holds the firſt place, and can hardly fail to be much liked by thoſe, who will be perſuaded to try it.—It is not only cheap and wholeſome, but a great delicacy; and it is principally on account of theſe puddings that the Americans, who reſide in this country, import annually for their own conſumption Indian Corn from the Continent of America.

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* Thoſe who diſlike trouble, and feel themſelves called upon by duty and honor to take an active part in undertakings for the public good, are extremely apt to endeavour to excuſe,—to themſelves as well as to the world,—their inactivity and ſupineneſs, by repreſenting the undertaking in queſtion as being ſo very difficult as to make all hope of ſucceſs quite chimerical and ridiculous.

In order to be able to give the moſt particular and ſatisfactory information reſpecting the manner of preparing theſe Indian puddings, I cauſed one of them to be made here, (in London,) under my immediate direction, by a perſon born and brought up in North America, and who underſtands perfectly the American art of cookery in all its branches *. This pudding, which was allowed by competent judges who taſted it to be as good as they had ever eaten, was compoſed and prepared in the following manner:

Approved Receipt for making a plain Indian Pudding.

Three pounds of Indian meal (from which the bran had been ſeparated by ſifting it in a common hair ſieve) were put into a large bowl, and *five pints of boiling water* were put to it, and the whole well ſtirred together; *three quarters of a pound of molaſſes* and *one ounce of ſalt* were then added to it, and theſe being well mixed, by ſtirring them with the other ingredients, the pudding was poured into a fit bag; and the bag being tied up, (an empty ſpace being left in the bag in tying it, equal to about one-ſixth of its contents, for giving room for the pudding to ſwell,) this pudding was put into a kettle of *boiling water*, and was boiled *ſix hours* without intermiſſion; the loſs of the water in the kettle by evaporation during this time being frequently replaced with *boiling water* from another kettle.

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* The Houſekeeper of my friend and countryman, Sir William Pepperel, Bart. of Upper Seymour Street, Portman Square.

The pudding upon being taken out of the bag weighed *ten pounds* and *one ounce*; and it was found to be perfectly done, not having the ſmalleſt remains of that raw taſte ſo diſagreeable to all palates, and particularly to thoſe who are not uſed to it, which always predominates in diſhes prepared of Indian meal when they are not ſufficiently cooked.

As this raw taſte is the only well-founded objection that can be made to this moſt uſeful grain, and is, I am perſuaded, the only cauſe which makes it diſliked by thoſe who are not accuſtomed to it, I would adviſe thoſe who may attempt to introduce it into common uſe, where it is not known, to begin with Indian (bag) puddings, ſuch as I have here been deſcribing; and that this is a very cheap kind of Food will be evident from the following computation:

Expence of preparing the Indian Pudding above mentioned.

		Pence.		Pence.
3 lb. of Indian meal at	——	$1\frac{1}{2}$	——	$4\frac{1}{2}$
$\frac{3}{4}$ lb. of molaſſes at	——	6	——	$4\frac{1}{2}$
1 oz. of ſalt at 2d. *per* lb.	——	—	——	$0\frac{1}{8}$
		Total for the ingredients,		$9\frac{1}{8}$

As this pudding weighed $10\frac{1}{16}$ lbs. and the ingredients coſt *nine pence* and *half a farthing*, this gives *three farthings and an half* for each pound of pudding.

It will be obſerved, that in this computation I have reckoned the Indian meal at no more than $1\frac{1}{2}$d *per* pound, whereas in the calculation which was given to determine the expence of preparing haſty-pudding it was taken at *two pence* a pound. I have here reckoned it at $1\frac{1}{2}$d. a pound, becauſe I am perſuaded it might be had here in London for that price, and even for leſs.—That which has lately been imported from Boſton has not coſt ſo much; and were it not for the preſent univerſal ſcarcity of proviſions in Europe, which has naturally raiſed the price of grain in North America, I have no doubt but Indian meal might be had in this country for leſs than *one penny farthing per* pound.

In compoſing the Indian pudding above mentioned, the molaſſes is charged at 6d. the pound, but that price is very exorbitant. A gallon of molaſſes weighing about 10 lbs. commonly coſts in the Weſt Indies from 7d. to 9d. ſterling; and allowing ſufficiently for the expences of freight, inſurance, and a fair profit for the merchant, it certainly ought not to coſt in London more than 1s. 8d. the gallon*; and this would bring it to 2d. *per* pound.

If we take the prices of Indian meal and molaſſes as they are here aſcertained, and compute the expence of the ingredients for the pudding before mentioned, it will be as follows:—

		Pence.		Pence.
3 lb. of Indian meal at	——	$1\frac{1}{4}$	——	$3\frac{3}{4}$
$\frac{3}{4}$ lb. of molaſſes at	——	2	——	$1\frac{1}{2}$
1 oz. ſalt at 2d. *per* lb.	——	—	——	$0\frac{1}{8}$
			Total,	$5\frac{3}{8}$

Now as the pudding weighed $10\frac{1}{16}$ lbs. this gives *two farthings*, very nearly, for each pound of pudding;

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* Molaſſes imported from the French Weſt India Iſlands into the American States is commonly ſold there from 12d. to 14d. the gallon.

ding; which is certainly very cheap indeed, particularly when the excellent qualities of the Food are conſidered.

This pudding, which ought to come out of the bag ſufficiently hard to retain its form, and even to be cut into ſlices, is ſo rich and palatable, that it may very well be eaten without any ſauce; but thoſe who can afford it commonly eat it with butter. A ſlice of the pudding, about half an inch, or three quarters of an inch in thickneſs, being laid hot upon a plate, an excavation is made in the middle of it, with the point of the knife, into which a ſmall piece of butter, as large perhaps as a nutmeg, is put, and where it ſoon melts. To expedite the melting of the butter, the ſmall piece of pudding which is cut out of the middle of the ſlice to form the excavation for receiving the butter, is frequently laid over the butter for a few moments, and is taken away (and eaten) as ſoon as the butter is melted. If the butter is not ſalt enough, a little ſalt is put into it after it is melted. The pudding is to be eaten with a knife and fork, beginning at the circumference of the ſlice, and approaching regularly towards the center, each piece of pudding being taken up with the fork, and dipped into the butter, or dipped into it *in part only*, as is commonly the caſe, before it is carried to the mouth.

To thoſe who are accuſtomed to view objects upon a great ſcale, and who are too much employed in directing *what* ought to be done, to deſcend to thoſe humble inveſtigations which are neceſſary to ſhow *how* it is to be effected, theſe details will doubtleſs appear trifling and ridiculous; but as my mind is ſtrongly impreſſed with the importance of giving the moſt minute and circumſtantial information reſpecting the *manner of performing* any operation, however ſimple it may be, to which people have not been accuſtomed, I muſt beg the indulgence of thoſe who may not feel themſelves particularly intereſted in theſe deſcriptions.

In regard to the amount of the expence for ſauce for a *plain Indian (bag) pudding*,—I have found that when butter is uſed for that purpoſe, (and no other ſauce ought ever to be uſed with it,) *half an ounce* of butter will ſuffice for *one pound* of the pudding.—It is very poſſible to contrive matters ſo as to uſe much more;—perhaps twice, or three times as much;—but if the directions relative to the *manner* of eating this Food, which have already been given, are ſtrictly followed, the allowance of butter here determined will be quite ſufficient for the purpoſe for which it is deſigned; that is to ſay, for giving an agreeable reliſh to the pudding.—Thoſe who are particularly fond of butter may uſe three quarters of an ounce of it with a pound of the pudding; but I am certain, that to uſe an ounce would be to waſte it to no purpoſe whatever.

If now we reckon Iriſh, or other firkin butter, (which, as it is ſalted, is the beſt that can be uſed,) at eight pence the pound, the ſauce for one pound of pudding, namely, half an ounce of butter, will coſt juſt *one farthing*; and this, added to the coſt of the pudding, *two farthings* the pound, gives *three farthings* for the coſt by the pound of this kind of food, *with its ſauce*; and, as this food is not only very rich and nutritive, but ſatisfying at the ſame time in a very remarkable degree, it appears how well calculated it is for feeding the Poor.

It ſhould be remembered, that the molaſſes uſed as an ingredient in theſe Indian puddings, does not ſerve merely to give taſte to them;—it acts a ſtill more important part;—it gives what, in the language of the kitchen, is called *lightneſs*.—It is a ſubſtitute for eggs, and nothing but eggs can ſerve as a ſubſtitute for it, except it be treacle; which, in fact, is a kind of molaſſes; or perhaps coarſe brown ſugar, which has nearly the ſame properties.—It prevents the pudding from being heavy, and clammy; and without communicating to it any diſagreeable ſweet taſte, or any thing of that flavour peculiar to molaſſes, gives it a richneſs uncommonly pleaſing to the palate. And to this we may add, that it is nutritive in a very extraordinary degree.—This is a fact well known in all countries where ſugar is made.

How far the laws and regulations of trade exiſting in this country might render it difficult to procure molaſſes from thoſe places where it may be had at the cheapeſt rate, I know not;—nor can I tell how far the free importation of it might be detrimental to our public finances;—I cannot, however, help thinking, that it is ſo great an object to this country to keep down the prices of proviſions, or rather to check the alarming celerity with which they are riſing, that means ought to be found to facilitate the importation, and introduction into common uſe, of an article of Food of ſuch extenſive utility. It might ſerve to correct in ſome meaſure, the baleful influence of another article of foreign produce, (tea,) which is doing infinite harm in this iſland.

A point of great importance in preparing an Indian pudding, is to boil it *properly* and *ſufficiently*. The water muſt be actually boiling when the pudding is put into it; and it never muſt be ſuffered to ceaſe boiling for a moment, till it is done; and if the pudding is not boiled full ſix hours, it will not be ſufficiently cooked.—Its hardneſs, when done, will depend on the ſpace left in the bag for its expanſion. The conſiſtency of the pudding ought to be ſuch, that it can be taken out of the bag without falling to pieces;—but it is always better, on many accounts, to make it too hard than too ſoft. The form of the pudding may be that of a cylinder; or rather of a truncated cone, the largeſt end being towards the mouth of the bag, in order that it may be got out of the bag with greater facility; or it may be made of a globular form, by tying it up in a napkin.—But whatever is the form of the pudding, the bag, or napkin in which it is to be boiled, muſt be wet in boiling water before the pudding, (which is quite liquid before it is boiled,) is poured into it; otherwiſe it will be apt to run through the cloth.

Though this pudding is ſo good, perfectly plain, when made according to the directions here given, that I do not think it capable of any real improvement; yet there are various additions that may be made to it, and that frequently are made to it, which may perhaps be thought by ſome to render it more palatable, or otherwiſe to improve it. *Suet* may, for inſtance, be added, and there is no ſuet pudding whatever ſuperior to it; and as no ſauce is neceſſary with a ſuet pudding, the expence for the ſuet will be nearly balanced by the ſaving of butter. To a pudding of the ſize of that juſt deſcribed, in the compoſition of which three pounds of Indian meal were uſed, one pound of ſuet will be ſufficient; and this, in general, will not coſt more than from five pence to ſix pence, even in London;—and the butter for ſauce to a plain pudding of the ſame ſize would coſt nearly as much. The ſuet pudding will indeed be rather the cheapeſt of the two, for the pound of ſuet will add a pound in weight to the pudding;—whereas the butter will only add five ounces.

As the pudding, made plain, weighing 10 $\frac{1}{16}$ lb. coſt 5 $\frac{3}{8}$ pence, the ſame pudding, with the addition of one pound of ſuet, would weigh 11 $\frac{1}{16}$ lb. and would coſt 11 $\frac{3}{8}$ pence,—reckoning the ſuet at ſix pence the pound.—Hence it appears that Indian ſuet pudding may be made in London for about *one penny* a pound. Wheaten bread, which is by no means ſo palatable, and certainly not half ſo nutritive, now coſts ſomething more than three pence the pound: and to this may be added, that dry bread can hardly be eaten alone; but of ſuet pudding a very comfortable meal may be made without any thing elſe.

A pudding in great repute in all parts of North America, is what is called an *apple pudding*. This is an Indian pudding, ſometimes with, and ſometimes without ſuet, with dried cuttings of ſweet apples mixed with it; and when eaten with butter, it is moſt delicious Food. Theſe apples, which are pared as ſoon as they are gathered from the tree, and being cut into ſmall pieces, are freed from their cores, and thoroughly dried in the ſun, may be kept good for ſeveral years. The proportions of the ingredients uſed in making theſe apple puddings are various; but, in general, about one pound of dried apples is mixed with three pounds of meal,—three quarters of a pound of molaſſes,—half an ounce of ſalt, and five pints of boiling water.

In America, various kinds of berries, found wild in the woods, ſuch as huckle-berries, bel-berries, whortle-berries, &c. are gathered and dried, and afterwards uſed as ingredients in Indian puddings: and dried cherries and plums may be made uſe of in the ſame manner.

All theſe Indian puddings have this advantage in common, that they are very good *warmed up*.—They will all keep good ſeveral days; and when cut into thin ſlices and toaſted, are an excellent ſubſtitute for bread.

It will doubtleſs be remarked, that in computing the expence of providing theſe different kinds of puddings, I have taken no notice of the expence which will be neceſſary for fuel to cook them.—This is an article which ought undoubtedly to be taken into the account. The reaſon of my not doing it here is this:—Having, in the courſe of my Experiments on Heat, found means to perform all the common operations of cookery with a ſurpriſingly ſmall expence of fuel, I find that the expence in queſtion, when the proper arrangements are made for ſaving fuel, will be very trifling. And farther, as I mean ſoon to publiſh my Treatiſe on the Management of Heat, in which I ſhall give the moſt ample directions relative to the mechanical arrangements of kitchen fire-places, and the beſt forms for all kinds of kitchen utenſils, I was deſirous not to anticipate a ſubject which will more naturally find its place in another Eſſay.—In the mean time I would obſerve, for the ſatisfaction of thoſe who may have doubts reſpecting the ſmallneſs of the expence neceſſary for fuel in cooking for the Poor, that the reſult of many experiments, of which I ſhall hereafter publiſh a particular account, has proved in the moſt ſatisfactory manner, that when Food is prepared in large quantities, and cooked in kitchens properly arranged, the expence for fuel ought never to amount to more than *two per cent.* of the coſt of the Food, even where victuals of the cheapeſt kind are provided, ſuch as is commonly uſed in feeding the Poor. In the Public Kitchen of the Houſe of Induſtry at Munich the expence for fuel is leſs than *one per cent.* of the coſt of the Food, as may be ſeen in the computation, page 206, Chapter III. of this Eſſay: and it ought not to be greater in many parts of Great Britain.

With regard to the price at which Indian Corn can be imported into this country from North America in time of peace, the following information, which I procured through the medium of a friend, from Captain Scott, a moſt worthy man, who has been conſtantly employed above thirty years as maſter of a ſhip in the trade between London and Boſton in the State of Maſſachuſetts, will doubtleſs be conſidered as authentic*.

The following are the queſtions which were put to him,—with his anſwers to them:

Q. What is the freight, *per ton*, of merchandiſe from Boſton in North America to London in time of peace?——*A.* Forty ſhillings (ſterling).

Q. What is the freight, *per* barrel, of Indian Corn?——*A.* Five ſhillings.

Q. How much *per cent.* is paid for *inſurance* from Boſton to London in time of peace?——*A.* Two *per cent.*

Q. What is the medium price of Indian Corn, *per* buſhel, in New England?——*A.* Two ſhillings and ſixpence.

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* This gentleman, who is as remarkable for his good fortune at ſea, as he is reſpectable on account of his private character and profeſſional knowledge, has croſſed the Atlantic Ocean the almoſt incredible number of *one hundred and ten times!* and without meeting with the ſmalleſt accident. He is now on the ſeas in his way to North America; and this voyage, which is his *hundred and eleventh*, he intends ſhould be his laſt. May he arrive ſafe,—and may he long enjoy in peace and quiet the well-earned fruits of his laborious life! Who can reflect on the innumerable ſtorms he muſt have experienced, and perils he has eſcaped, without feeling much intereſted in his preſervation and happineſs?

Q. What is the price of it at this time?——*A.* Three ſhillings and ſixpence.

Q. How many buſhels of Indian Corn are reckoned to a barrel?——*A. Four.*

From this account it appears that Indian Corn might, in time of peace, be imported into this country and ſold here for leſs than *four ſhillings* the buſhel;—and that it ought not to coſt at this moment much more than *five ſhillings* a buſhel.

If it be imported in caſks, (which is certainly the beſt way of packing it,) as the freight of a barrel containing four buſhels is five ſhillings, this gives 1 s. 3d. a buſhel for freight; and if we add *one penny* a buſhel for inſurance, this will make the amount of freight and inſurance 1 s. 4d. which, added to the prime coſt of the Corn in America, (2s. 6d. *per* buſhel in the time of peace, and 3s. 6d. at this time,) will bring it to 3s. 10d. *per* buſhel in time of peace, and 4s. 10d. at this preſent moment.

A buſhel of Indian Corn of the growth of New England was found to weigh 61 lb.; but we will ſuppoſe it to weigh at a medium only 60 lb. *per* buſhel; and we will alſo ſuppoſe that to each buſhel of Corn when ground there is 9 lb. of bran, which is ſurely a very large allowance, and 1 lb. of waſte in grinding and ſifting;—this will leave 50 lb. of flour for each buſhel of the Corn; and as it will coſt, in time of peace, only 3s. 10d. or 46 pence, this gives for each pound of flour $\frac{46}{50}$ of a penny, or $3\frac{3}{4}$ farthings very nearly.

If the price of the Indian Corn *per* buſhel be taken at 4s. 10d. what it ought to coſt at this time in London, without any bounty on importation being brought into the account,—the price of the flour will be 4s. 10d. equal to 58 pence for 50 lb. in weight, or $1\frac{1}{6}$ penny the pound, which is leſs than one third of the preſent price of wheat flour. Rice, which is certainly not more nouriſhing than Indian Corn, coſts $4\frac{1}{2}$ pence the pound.

If $\frac{1}{15}$ of the value of Indian Corn be added to defray the expence of grinding it, the price of the flour will not even then be greater in London than *one penny* the pound in time of peace, and about *one penny farthing* at the preſent high price of that grain in North America. Hence it appears, that in ſtating the mean price in London of the flour of Indian Corn at *one penny farthing*, I have rather rated it too high than too low.

With regard to the expence of importing it, there may be, and doubtleſs there are frequently other expences beſides thoſe of freight and inſurance; but, on the other hand, a very conſiderable part of the expences attending the importation of it may be reimburſed by the profits ariſing from the ſale of the barrels in which it is imported, as I have been informed by a perſon who imports it every year, and always avails himſelf of that advantage.

One circumſtance much in favour of the introduction of Indian Corn into common uſe in this country is the facility with which it may be had in any quantity. It grows in all quarters of the globe, and almoſt in every climate; and in hot countries two or three crops of it may be raiſed from the ſame ground in the courſe of a year.—It ſucceeds equally well in the cold regions of Canada;—in the temperate climes of the United States of America;—and in the burning heats of the tropics; and it might be had from Africa and Aſia as well as from America. And were it even true,—what I never can be perſuaded to believe,—that it would be impoſſible to introduce it as an article of Food in this country, it might at leaſt be uſed as fodder for cattle, whoſe averſion to it, I will venture to ſay, would not be found to be *unconquerable*.

Oats now coſt near two pence the pound in this country. Indian Corn, which would coſt but a little more than half as much, would certainly be much more nouriſhing, even for horſes, as well as for horned cattle;—and as for hogs and poultry, they ought never to be fed with any other grain. Thoſe who have taſted the pork and the poultry fatted on Indian Corn will readily give their aſſent to this opinion.

CHAP. VII.

Receipts for preparing various Kinds of cheap Food.—Of Maccaroni.—*Of* Potatoes.—*Approved Receipts for boiling Potatoes.—Of Potatoe Puddings.—Of Potatoe Dumplins.—Of boiled Potatoes with a Sauce.—Of Potatoe Salad.—Of* Barley—*Is much more nutritious than Wheat.—Barley Meal, a good Subſtitute for Pearl Barley, for making Soups.—General Directions for preparing cheap Soups.—Receipt for the cheapeſt Soup that can be made.—Of* Samp—*Method of preparing it—Is an excellent Subſtitute for Bread.—Of burnt Soup.—Of* Rye Bread.

When I began writing the foregoing Chapter of this Eſſay, I had hopes of being able to procure ſatisfactory information reſpecting the manner in which the maccaroni eaten by the Poor in Italy, and particularly in the kingdom of Naples, is prepared;—but though I have taken much pains in making theſe inquiries, my ſucceſs in them has not been ſuch as I could have wiſhed:—The proceſs, I have often been told, is very ſimple; and from the very low price at which maccaroni is ſold, ready cooked, to the *Lazzaroni* in the ſtreets of Naples, it cannot be expenſive.—There is a better kind of maccaroni which is prepared and ſold by the nuns in ſome of the convents in

Italy, which is much dearer; but this ſort would in any country be too expenſive to be uſed as Food for the Poor.—It is however not dearer than many kinds of Food uſed by the Poor in this country; and as it is very palatable and wholeſome, and may be uſed in a variety of ways, a receipt for preparing it may perhaps not be unacceptable to many of my readers.

A Receipt for making that Kind of Maccaroni called in Italy TAGLIATI.

Take any number of freſh-laid eggs and break them into a bowl or tray, beat them up with a ſpoon, but not to a froth,—add of the fineſt wheat flour as much as is neceſſary to form a dough of the conſiſtence of paſte.—Work this paſte well with a rolling-pin;—roll it out into very thin leaves;—lay ten or twelve of theſe leaves one upon the other, and with a ſharp knife cut them into very fine threads.—Theſe threads (which, if the maſs is of a proper conſiſtency, will not adhere to each other) are to be laid on a clean board, or on paper, and dried in the air.

This maccaroni, (or *cut paſte* as it is called in Germany, where it is in great repute,) may be eaten in various ways; but the moſt common way of uſing it is to eat it with milk inſtead of bread, and with chicken broth, and other broths and ſoups, with which it is boiled. With proper care it may be kept good for many months.

It is ſometimes fried in butter, and in this way of cooking it, it forms a moſt excellent diſh indeed; inferior, I believe, to no diſh of flour that can be made. It is not, however, a very cheap diſh, as eggs and butter are both expenſive articles in moſt countries.

An inferiour kind of *cut paſte* is ſometimes prepared by the Poor in Germany, which is made ſimply of water and wheat flour, and this has more reſemblance to common maccaroni than that juſt deſcribed; and might, in many caſes, be uſed inſtead of it. I do not think, however, that it can be kept long without ſpoiling; whereas maccaroni, as is well known, may be kept good for a great length of time.—Though I have not been able to get any ſatisfactory information relative to the proceſs of making maccaroni, yet I have made ſome experiments to aſcertain the expence of cooking it, and of the coſt of the cheeſe neceſſary for giving it a reliſh.

Half a pound of maccaroni, which was purchaſed at an Italian ſhop in London, and which coſt ten pence*, was boiled till it was ſufficiently done, namely, about one hour and an half, when, being taken out of the boiling water and weighed, it was found to weigh thirty-one ounces and an half, or one pound fifteen ounces and an half. The quantity of cheeſe employed to give a reliſh to this diſh of boiled maccaroni, (and which was grated over it after it was put into the diſh,) was one ounce, and coſt *two farthings*.

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* This maccaroni would not probably have coſt one quarter of that ſum at Naples.—Common maccaroni is frequently ſold there as low as fourteen grains, equal to five pence halfpenny ſterling the rottolo, weighing twenty-eight ounces and three quarters Avoirdupois, which is three pence ſterling the pound Avoirdupois. An inferiour kind of maccaroni, ſuch as is commonly ſold at Naples to the Poor, coſts not more than two pence ſterling the pound Avoirdupois.

Maccaroni is conſidered as very cheap Food in thoſe countries where it is prepared in the greateſt perfection, and where it is in common uſe among the lower claſſes of ſociety; and as wheat, of which grain it is always made, is a ſtaple commodity in this country, it would certainly be worth while to take ſome trouble to introduce the manufacture of it, particularly as it is already become an article of luxury upon the tables of the rich, and as great quantities of it are annually imported and ſold here at a moſt exorbitant price*:—But maccaroni is by no means the cheapeſt Food that can be provided for feeding the Poor, in this iſland;—nor do I believe it is ſo in any country.—*Polenta*, or *Indian Corn*, of which ſo much has already been ſaid,—and *Potatoes*, of which too much cannot be ſaid,—are both much better adapted, in all reſpects, for that purpoſe.—Maccaroni would however, I am perſuaded, could it be prepared in this country, be much leſs expenſive than many kinds of Food now commonly uſed by our Poor; and conſequently might be of conſiderable uſe to them.

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* If maccaroni could be made in this country as cheap as it is made in Naples, that is to ſay, ſo as to be afforded for three pence ſterling the pound Avoirdupois, for the beſt ſort, (and I do not ſee why it ſhould not,) as half a pound of dry maccaroni weighs when boiled very nearly two pounds, each pound of boiled maccaroni would coſt only *three farthings*, and the cheeſe neceſſary for giving it a reliſh *one farthing* more, making together *one penny*; which is certainly a very moderate price for ſuch good and wholeſome Food.

With regard to *Potatoes* they are now ſo generally known, and their uſefulneſs is ſo univerſally acknowledged, that it would be a waſte of time to attempt to recommend them.—I ſhall therefore content myſelf with merely giving receipts for a few cheap diſhes in which they are employed as a principal ingredient.

Though there is no article uſed as Food of which a greater variety of well-taſted and wholeſome diſhes may be prepared than of potatoes, yet it ſeems to be the unanimous opinion of thoſe who are moſt acquainted with theſe uſeful vegetables, that the beſt way of cooking them is to boil them ſimply, and with their ſkins on, in water.—But the manner of boiling them is by no means a matter of indifference.—This proceſs is better underſtood in Ireland, where by much the greater part of the inhabitants live almoſt entirely on this Food, than any where elſe.

This is what might have been expected;—but thoſe who have never conſidered with attention the extreme ſlowneſs of the progreſs of national improvements, *where nobody takes pains to accelerate them*, will doubtleſs be ſurpriſed when they are told that in moſt parts of England, though the uſe of potatoes all over the country has for ſo many years been general, yet, to this hour, few, comparatively, who eat them, know how to dreſs them properly.—The inhabitants of thoſe countries which lie on the ſea-coaſt oppoſite to Ireland have adopted the Iriſh method of boiling potatoes; but it is more than probable that a century at leaſt would have been required for thoſe improvements to have made their way through the iſland, had not the preſent alarms on account of a ſcarcity of grain rouſed the public, and fixed their attention upon a ſubject too long neglected in this enlightened country.

The introduction of improvements tending to increaſe the comforts and innocent enjoyments of that numerous and uſeful claſs of mankind who earn their bread by the ſweat of their brow, is an object not more intereſting to a benevolent mind than it is important in the eyes of an enlightened ſtateſman.

There are, without doubt, *great men* who will ſmile at ſeeing theſe obſervations connected with a ſubject ſo humble and obſcure as the boiling of potatoes, but *good men* will feel that the ſubject is not unworthy of their attention.

The following directions for boiling potatoes, which I have copied from a late Report of the Board of Agriculture, I can recommend from my own experience:

" *On the boiling of Potatoes ſo as to be eat as*
" *Bread.*

" There is nothing that would tend more to
" promote the conſumption of potatoes than to
" have the proper mode of preparing them as
" Food generally known.—In London, this is
" little

“ little attended to; whereas in Lancaſhire and “ Ireland the boiling of potatoes is brought to “ very great perfection indeed. When prepared in “ the following manner, if the quality of the root “ is good, they may be eat as bread, a practice “ not unuſual in Ireland.—The potatoes ſhould “ be, as much as poſſible, of the ſame ſize, and “ the large and ſmall ones boiled ſeparately.— “ They muſt be waſhed clean, and, without paring “ or ſcraping, put in a pot with cold water, not “ ſufficient to cover them, as they will produce “ themſelves, before they boil, a conſiderable quantity of fluid.—They do not admit being put “ into a veſſel of boiling water like greens.—If “ the potatoes are tolerably large, it will be neceſſary, as ſoon as they begin to boil, to throw in “ ſome cold water, and occaſionally to repeat it, “ till the potatoes are boiled to the heart, (which “ will take from half an hour to an hour and a “ quarter, according to their ſize,) they will otherwiſe crack, and burſt to pieces on the outſide, “ whilſt the inſide will be nearly in a crude ſtate, “ and conſequently very unpalatable and unwholeſome.—During the boiling, throwing in a little “ ſalt occaſionally is found a great improvement, “ and it is certain that the ſlower they are cooked “ the better.—When boiled, pour off the water, and “ evaporate the moiſture, by replacing the veſſel “ in which the potatoes were boiled once more “ over the fire.—This makes them remarkably “ dry and mealy.—They ſhould be brought to “ the table with the ſkins on, and eat with a little "ſalt, as bread.—Nothing but experience can "ſatisfy any one how ſuperior the potatoe is, "thus prepared, if the ſort is good and meally.— "Some prefer roaſting potatoes; but the mode "above detailed, extracted partly from the inte- "reſting paper of Samuel Hayes, Eſquire, of "Avondale, in Ireland, (Report on the Culture "of Potatoes, p. 103.), and partly from the Lanca- "ſhire reprinted Report (p. 63.), and other com- "munications to the Board, is at leaſt equal, if "not ſuperior.—Some have tried boiling pota- "toes in ſteam, thinking by that proceſs that "they muſt imbibe leſs water.—But immerſion in "water cauſes the diſcharge of a certain ſubſtance, "which the ſteam alone is incapable of doing, "and by retaining which, the flavour of the root "is injured, and they afterwards become dry by "being put over the fire a ſecond time without "water.—With a little butter, or milk, or fiſh, "they make an excellent meſs."

Theſe directions are ſo clear, that it is hardly poſſible to miſtake them; and thoſe who follow them exactly will find their potatoes ſurpriſingly improved, and will be convinced that the manner of boiling them is a matter of much greater importance than has hitherto been imagined.

Were this method of boiling potatoes generally known in countries where theſe vegetables are only beginning to make their way into common uſe,—as in Bavaria, for inſtance,—I have no doubt but it would contribute more than any thing elſe to their ſpeedy introduction.

The following account of an experiment, lately made in one of the pariſhes of this metropolis (London), was communicated to me by a friend, who has permitted me to publiſh it.—It will ſerve to ſhow,—what I am moſt anxious to make appear,—that the prejudices of the Poor in regard to their Food *are not unconquerable.*

" Feburary 25th, 1796.

" The pariſh officers of Saint Olaves, Southwark, " deſirous of contributing their aid towards leſſening " the conſumption of wheat, reſolved on the following " ſuccedaneum for their cuſtomary ſuet pudding, " which they give to their Poor for dinner one day " in the week; which was ordered as follows:

	£.	s.	d.
200 lb. potatoes boiled, and ſkinned and maſhed	0	8	0
2 gallons of milk - -	0	2	4
12 lb. of ſuet, at 4½ - -	0	4	6
1 peck of flour - -	0	4	0
Baking - - -	0	1	8
Expence	1	0	6

" Their ordinary ſuet pudding had been made " thus:

	£.	s.	d.
2 buſhels of flour - -	1	12	0
12 lb. ſuet - -	0	4	6
Baking - - -	0	1	8
Expence	1	18	2
Coſt of the ingredients for the potatoe ſuet pudding	1	0	6
Difference	0	17	8"

This was the dinner provided for 200 perſons, who gave a decided perſerence to the cheapeſt of theſe preparations, and wiſh it to be continued.

The following baked potatoe-puddings were prepared in the hotel where I lodge, and were taſted by a number of perſons, who found them in general very palatable.

Baked Potatoe-puddings.

N° I.

12 ounces of potatoes, boiled, ſkinned, and maſhed;
1 ounce of ſuet;
1 ounce (or $\frac{1}{16}$ of a pint) of milk, and
1 ounce of Glouceſter cheeſe.

Total 15 ounces,—mixed with as much boiling water as was neceſſary to bring it to a due conſiſtence, and then baked in an earthen pan.

N° II.

12 ounces of maſhed potatoes as before;
1 ounce of milk, and
1 ounce of ſuet, with a ſufficient quantity of ſalt.—Mixed up with boiling water, and baked in a pan.

N° III.

12 ounces of maſhed potatoes;
1 ounce of ſuet;
1 ounce of red herrings pounded fine in a mortar.—Mixed—baked, &c. as before.

N° IV.

12 ounces of maſhed potatoes;
1 ounce of ſuet, and
1 ounce of hung beef grated fine with a grater.—Mixed and baked as before.

Theſe puddings when baked weighed from 11 to 12 ounces each.—They were all liked by thoſe who taſted them, but N° 1 and N° 3 ſeemed to meet with the moſt general approbation.

Receipt for a very cheap Potatoe-dumplin.

Take any quantity of potatoes, half boiled;—ſkin or pare them, and grate them to a coarſe powder with a grater;—mix them up with a very ſmall quantity of flour, $\frac{1}{10}$, for inſtance, of the weight of the potatoes, or even leſs;—add a ſeaſoning of ſalt, pepper, and ſweet herbs;—mix up the whole with boiling water to a proper conſiſtency, and form the maſs into dumplins of the ſize of a large apple.—Roll the dumplins, when formed, in flour, to prevent the water from penetrating them, and put them into boiling water, and boil them till they riſe to the ſurface of the water, and ſwim, when they will be found to be ſufficiently done.

Theſe dumplins may be made very ſavoury by mixing with them a ſmall quantity of grated hung beef, or of pounded red herring.

Fried bread may likewiſe be mixed with them, and this without any other addition, except a ſeaſoning of ſalt, forms an excellent diſh.

Upon the ſame principles upon which theſe dumplins are prepared large boiled bag-puddings may be made; and for feeding the Poor in a public eſtabliſhment, where great numbers are to be fed, puddings, as there is leſs trouble in preparing them, are always to be preferred to dumplins.

It would ſwell this Eſſay, (which has already exceeded the limits aſſigned to it,) to the ſize of a large volume, were I to give receipts for all the good diſhes that may be prepared with potatoes.—There is however one method of preparing potatoes much in uſe in many parts of Germany, which appears to me to deſerve being particularly mentioned and recommended;—it is as follows:

A Receipt for preparing boiled Potatoes with a Sauce.

The potatoes being properly boiled, and ſkinned, are cut into ſlices, and put into a diſh, and a ſauce, ſimilar to that commonly uſed with a fricaſeed chicken, is poured over them.

This makes an excellent and a very wholeſome diſh, but more calculated, it is true, for the tables of the opulent than for the Poor.—Good ſauces might however be compoſed for this diſh which would not be expenſive.—Common milk-porridge, made rather thicker than uſual, with wheat flour, and well ſalted, would not be a bad ſauce for it.

Potatoe Salad.

A diſh in high repute in ſome parts of Germany, and which deſerves to be particularly recommended, is a ſalad of potatoes. The potatoes being properly boiled and ſkinned, are cut into thin ſlices, and the ſame ſauce which is commonly uſed for ſalads of lettuce is poured over them; ſome mix anchovies with this ſauce, which gives it a very agreeable reliſh, and with potatoes it is remarkably palatable.

Boiled potatoes cut in ſlices and fried in butter, or in lard, and ſeaſoned with ſalt and pepper, is likewiſe a very palatable and wholeſome diſh.

Of Barley.

I have more than once mentioned the extraordinary nutritive powers of this grain, and the uſe of it in feeding the Poor cannot be too ſtrongly recommended.—It is now beginning to be much uſed in this country, mixed with wheat flour, for making bread; but it is not, I am perſuaded, in bread, but in *ſoups*, that Barley can be employed to the greateſt advantage.—It is aſtoniſhing how much water a ſmall quantity of Barley-meal will thicken, and change to the conſiſtency of a jelly;—and, if my ſuſpicions with regard to the part which water acts in nutrition are founded, this will enable us to account, not only for the nutritive quality of Barley, but alſo for the ſame quality in a ſtill higher degree which ſago and ſalope are known to poſſeſs.—Sago and ſalope thicken, and change to the conſiſtency of a jelly, (and as I ſuppoſe, prepare for decompoſition,) a greater quantity of water than Barley, and both ſago and ſalope are known to be nutritious in a very extraordinary degree.

Barley will thicken and change to a jelly much more water than any other grain with which we are acquainted, rice even not excepted;—and I have found reaſon to conclude from the reſult of innumerable experiments, which in the courſe of ſeveral years have been made under my direction in the public kitchen of the Houſe of Induſtry at Munich, that for making ſoups, Barley is by far the beſt grain that can be employed.

Were I called upon to give an opinion in regard to the comparative nutritiouſneſs of Barley-meal and wheat flour, *when uſed in ſoups*, I ſhould not heſitate to ſay that I think the former at leaſt three or four times as nutritious as the latter.

Scotch broth is known to be one of the moſt nouriſhing diſhes in common uſe; and there is no doubt but it owes its extraordinary nutritive quality to the Scotch (or Pearl) Barley, which is always uſed in preparing it.—If the Barley be omitted, the broth will be found to be poor and waſhy, and will afford little nouriſhment;—but any of the other ingredients may be retrenched;—even the meat;—without impairing very ſenſibly the nutritive quality of the Food.—Its flavour and palatableneſs may be impaired by ſuch retrenchments; but if the water be well thickened with the Barley, the Food will ſtill be very nouriſhing.

In preparing the ſoup uſed in feeding the Poor in the Houſe of Induſtry at Munich, Pearl Barley has hitherto been uſed; but I have found, by ſome experiments I have lately made in London, that Pearl

Barley is by no means neceſſary, as common Barley-meal will anſwer, to all intents and purpoſes, juſt as well.—In one reſpect it anſwers better, for it does not require half ſo much boiling.

In comparing cheap ſoups for feeding the Poor, the following ſhort and plain directions will be found to be uſeful:

General Directions for preparing cheap Soup.

Firſt, Each portion of Soup ſhould conſiſt of *one pint* and a *quarter*, which, if the Soup be rich, will afford a good meal to a grown perſon.—Such a portion will in general weigh about *one pound* and a *quarter*, or *twenty ounces* Avoirdupois.

Secondly, The baſis of each portion of Soup ſhould conſiſt of *one ounce* and a *quarter* of Barley-meal, boiled with *one pint and a quarter of water* till the whole be reduced to the uniform conſiſtency of a thick jelly.—All other additions to the Soup do little elſe than ſerve to make it more palatable; or by rendering a long maſtication neceſſary, to increaſe and prolong the pleaſure of eating;—both theſe objects are however of very great importance, and too much attention cannot be paid to them; but both of them may, with proper management, be attained without much expence.

Were I aſked to give a Receipt for the cheapeſt Food which (in my opinion) it would be poſſible to provide in this country, it would be the following:

Receipt for a very cheap Soup.

Take of water eight gallons, and mixing with it 5lb. of Barley-meal, boil it to the conſiſtency of a thick jelly.—Seaſon it with ſalt, pepper, vinegar, ſweet herbs, and four red herrings, pounded in a mortar.—Inſtead of bread, add to it 5lb. of Indian Corn made into *Samp*, and ſtirring it together with a ladle, ſerve it up immediately in portions of 20 ounces.

Samp, which is here recommended, is a diſh ſaid to have been invented by the ſavages of North America, who have no Corn-mills.—It is Indian Corn deprived of its external coat by ſoaking it ten or twelve hours in a lixivium of water and wood-aſhes.—This coat, or huſk, being ſeparated from the kernel, riſes to the ſurface of the water, while the grain, which is ſpecifically heavier than water, remains at the bottom of the veſſel; which grain, thus deprived of its hard coat of armour, is boiled, or rather ſimmered for a great length of time, two days for inſtance, in a kettle of water placed near the fire.—When ſufficiently cooked, the kernels will be found to be ſwelled to a great ſize and burſt open, and this Food, which is uncommonly ſweet and nouriſhing, may be uſed in a great variety of ways; but the beſt way of uſing it is to mix it with milk, and with ſoups, and broths, as a ſubſtitute for bread. It is even better than bread for theſe purpoſes, for beſides being quite as palatable as the very beſt bread, as it is leſs liable than bread to grow too ſoft when mixed with theſe liquids, without being diſagreeably hard, it requires more maſtication, and conſequently tends more to increaſe and prolong the pleaſure of eating.

The Soup which may be prepared with the quantities of ingredients mentioned in the foregoing Receipt will be ſufficient for 64 portions, and the coſt of theſe ingredients will be as follows:

	Pence.
For 5 lb. of Barley-meal, at 1½ pence, the Barley being reckoned at the preſent very high price of it in this country, viz. 5 s. 6d *per* buſhel	7½
5 lb. of Indian Corn, at 1¼ pence the pound	6¼
4 red herrings - - -	3
Vinegar - - -	1
Salt - - - -	1
Pepper and ſweet herbs - - -	2
Total	20¾

This ſum, (20¾ pence,) divided by 64, the number of portions of Soup, gives ſomething leſs than *one third of a penny* for the coſt of each portion.—But at the medium price of Barley in Great Britain, and of Indian Corn as it may be afforded here, I am perſuaded that this Soup may be provided at *one farthing* the portion of 20 ounces.

There is another kind of Soup in great repute among the poor people, and indeed among the opulent farmers, in Germany, which would not come much higher.—This is what is called *burnt Soup*, or as I ſhould rather call it, *brown Soup*, and it is prepared in the following manner:

Receipt for making BROWN SOUP.

Take a ſmall piece of butter and put it over the fire in a clean frying-pan made of iron (not copper, for that metal uſed for this purpoſe would be poiſonous);—put to it a few ſpoonfuls of wheat or rye meal;—ſtir the whole about briſkly with a broad wooden ſpoon, or rather knife, with a broad and thin edge, till the butter has diſappeared, and the meal is uniformly of a deep brown colour; great care being taken, by ſtirring it continually, to prevent the meal from being burned to the pan.

A very ſmall quantity of this roaſted meal, (perhaps half an ounce in weight would be ſufficient,) being put into a ſauce-pan and boiled with a pint and a quarter of water, forms a portion of Soup, which, when ſeaſoned with ſalt, pepper, and vinegar, and eaten with bread cut fine, and mixed with it at the moment when it is ſerved up, makes a kind of Food by no means unpalatable; and which is ſaid to be very wholeſome.

As this Soup may be prepared in a very ſhort time, an inſtant being ſufficient for boiling it; and as the ingredients for making it are very cheap, and may be eaſily tranſported, this Food is much uſed in Bavaria by our wood-cutters, who go into the mountains far from any habitations to fell wood.—Their proviſions for a week, (the time they commonly remain in the mountains,) conſiſt of a large loaf of rye bread (which, as it does not ſo ſoon grow dry and ſtale as wheaten bread, is always preferred to it); a linen bag containing a ſmall quantity of roaſted meal;—another ſmall bag of ſalt;—and a ſmall wooden box containing ſome pounded black pepper;—with a ſmall frying-pan of hammered iron, about ten or eleven inches in diameter, which ſerves them both as an utenſil for cooking, and as a diſh for containing the victuals when cooked.—They ſometimes, but not often, take with them a ſmall bottle of vinegar;—but *black-pepper* is an ingredient in brown Soup which is never omitted.—Two table-ſpoonfuls of roaſted meal is quite enough to make a good portion of Soup for one perſon; and the quantity of butter neceſſary to be uſed in roaſting this quantity of meal is very ſmall, and will coſt very little.—One ounce of butter would be ſufficient for roaſting eight ounces of meal; and if half an ounce of roaſted meal is ſufficient for making one portion of Soup, the *butter* will not amount to more than $\frac{1}{16}$ of an ounce; and, at eight pence the pound, will coſt only $\frac{1}{32}$ of a penny, or $\frac{1}{8}$ of a farthing.—The coſt of the meal for a portion of this Soup is not much more conſiderable. If it be rye meal, (which is ſaid to be quite as good for roaſting as the fineſt wheat flour,) it will not coſt, in this country, even now when grain is ſo dear, more than 1$\frac{1}{2}$d. per pound;—$\frac{1}{2}$ an ounce, therefore, the quantity required for one portion of the Soup, would coſt only $\frac{6}{32}$ of a farthing;—and the meal and butter together no more than $(\frac{1}{5} + \frac{6}{32}) = \frac{10}{32}$, or ſomething leſs than $\frac{1}{3}$ of a farthing.—If to this ſum we add the coſt of the ingredients uſed to ſeaſon the Soup, namely, for *ſalt*, *pepper*, and *vinegar*, allowing for them as much as the amount of the coſt of the butter and the meal, or $\frac{1}{5}$ of a farthing, this will give $\frac{2}{5}$ of a farthing for the coſt of the ingredients uſed in preparing one portion of this Soup; but as the bread which is eaten with it is an expenſive article, this Food will not, upon the whole, be cheaper than the Soup juſt mentioned; and it is certainly neither ſo nouriſhing nor ſo wholeſome.

Brown Soup might, however, on certain occaſions, be found to be uſeful. As it is ſo ſoon cooked, and as the ingredients for making it are ſo eaſily prepared, preſerved, and tranſported from place to place; it might be uſeful to travellers, and to ſoldiers on a march. And though it can hardly be ſuppoſed to be of itſelf very nouriſhing, yet it is poſſible it may render the bread eaten with it not only more nutritive, but alſo more wholeſome;—and it certainly renders it more ſavoury and palatable.—It is the common breakfaſt of the peaſants in Bavaria; and it is infinitely preferable, in all reſpects, to that moſt pernicious waſh, *tea*, with which the lower claſſes of the inhabitants of this iſland drench their ſtomachs, and ruin their conſtitutions.

When tea is mixed with a ſufficient quantity of ſugar and good cream;—when it is taken with a large quantity of bread and butter, or with toaſt and boiled eggs;—and above all,—*when it is not drank too hot*, it is certainly leſs unwholeſome; but a ſimple infuſion of this drug, drank boiling hot, as the Poor uſually take it, is certainly a poiſon which, though it is ſometimes ſlow in its operation, never fails to produce very fatal effects, even in the ſtrongeſt conſtitution, where the free uſe of it is continued for a conſiderable length of time.

Of Rye Bread.

The prejudice in this iſland againſt bread made of Rye, is the more extraordinary, as in many parts of the country no other kind of bread is uſed; and as the general uſe of it in many parts of Europe, for ages, has proved it to be perfectly wholeſome.—In thoſe countries where it is in common uſe, many perſons prefer it to bread made of the beſt wheat flour; and though wheaten bread is commonly preferred to it, yet I am perſuaded that the general diſlike of it, where it is not much in uſe, is more owing to its being *badly prepared*, or not well baked, than to any thing elſe.

As an account of ſome experiments upon baking Rye Bread, which were made under my immediate care and inſpection in the bake-houſe of the Houſe of Induſtry at Munich, may perhaps be of uſe to thoſe who wiſh to know how good Rye Bread may be prepared; as alſo to ſuch as are deſirous of aſcertaining, by ſimilar experiments, what, in any given caſe, the profits of a baker really are; I ſhall publiſh an account in detail of theſe experiments, in the Appendix to this volume.

I cannot conclude this Eſſay, without once more recommending, in the moſt earneſt manner, to the attention of the Public, and more eſpecially to the attention of all thoſe who are engaged in public affairs,—the ſubject which has here been attempted to be inveſtigated. It is certainly of very great importance, in whatever light it is conſidered; and it is particularly ſo at the preſent moment: *for however ſtateſmen may differ in opinion with reſpect to the danger or expediency of making any alterations in the conſtitution, or eſtabliſhed forms of government, in times of popular commotion, no doubts can be entertained with reſpect to the policy of diminiſhing, as much as poſſible, at all times,—and more eſpecially in times like the preſent,—the miſery of the lower claſſes of the people.*

END OF THE THIRD ESSAY.